Appendix D: Transportation Study

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### 1. Introduction

The District of Columbia, Division of Transportation (DDOT), proposes to investigate impacts of reopening the existing closed section of Klingle Road between Cortland Place and Porter Street in the Northwest portion of Washington, D.C. A Traffic Engineering Study was conducted to evaluate traffic operations near the study area for various Options. Existing and future traffic analyses were conducted at critical locations within the Study Area. Future traffic operational conditions were analyzed for year 2017, for no build conditions as well as for three (3) build condition scenarios. They are as follows:

- Year 2017 no build conditions: Klingle Road remains closed. (Also referred to as Options A through D)
- Year 2017 build conditions scenario 1: Rebuild Klingle Road to its original (existing) alignment and dimensions and further repair/replace storm drainage to open for vehicular traffic. (Also referred to as Option E)
- Year 2017 build conditions scenario 2: Reconfigure Klingle Road within existing right-of-way to improve alignment and drainage to open for vehicular traffic. (Also referred to as Option F)
- Year 2017 build conditions scenario 3: Build Klingle Road as a one lane (one-way) road and a pedestrian/bicycle lane. (Also referred to as Option G)

DDOT in conjunction with the Washington DC Council of Governments (COG), provided traffic data for this study. In addition, several field studies and observations were made to assess traffic operations and to collect traffic data. This data was then used to establish existing and future conditions. Future traffic volumes were established based on the weighed trip share percentage from the roadways parallel to Klingle Road and based on traffic volumes that were present on Klingle Road prior to its closure.

Operational Level of Service (LOS) analyses were conducted for existing and future scenarios at critical intersections. Safety analysis and travel speed studies along the major roadways within the vicinity of the study area are also included in this report.

This report also serves to evaluate whether the reopening of Klingle Road has specific merit from a traffic operational perspective. Although the primary purpose of the proposed project is related to non-traffic operational factors, the study addresses any additional benefits that could result from one or more of the build Options considered.

# 2. Project Description

Closed for traffic between Porter Street and Cortland Place in 1990, Klingle Road, which extends east west in direction, is a two-lane road with one lane in each direction. Based on the traffic data collected in 1988 and the "Traffic Impact of Closing Klingle Road on Porter Street" Study conducted in 1995, Klingle Road carried approximately 3,200 vehicles per day and approximately 200 vehicles in each direction during peak hours when the roadway was open to traffic.

The road network surrounding Klingle Road is currently experiencing excessive delays and poor level of service during peak hours, especially along roads parallel to Klingle Road. The reopening of Klingle Road has been suggested as one of the options to improve the east-west cross town traffic conditions, which provide access to the National Cathedral, American University, upper Georgetown, and the MacArthur Boulevard area. In order to evaluate the traffic impact of reopening Klingle Road, the following intersections were considered for traffic operational analysis. They are as follows:

- > Intersection of Connecticut Avenue and Porter Street
- ➤ Intersection of Cleveland Avenue/Garfield Street/32<sup>nd</sup> Street

- > Intersection of 34<sup>th</sup> Street and Woodley Road
- > Intersection of Woodley Road and Klingle Road
- > Intersection of Woodley Road and 32<sup>nd</sup> Street

Figure 1 shows the study area and key intersections analyzed for this study (Appendix D-3).

# 3. Existing Conditions

The traffic data used for the analysis was provided by the DDOT and verified by the staff of COG. Several field investigations were also conducted, supplementing this data, to establish the existing traffic conditions. A brief description of the five key intersections analyzed as a part of this study is presented in the following sections.

### ■ Intersection of Connecticut Avenue and Porter Street

The intersection of Connecticut Avenue and Porter Street is a four-leg intersection, controlled by a traffic signal. Connecticut Avenue is a six-lane street with a reversible center lane during the morning and evening peak periods of traffic operations. During the morning peak period, Connecticut Avenue provides four travel lanes for southbound traffic and two travel lanes for northbound. During the evening peak, Connecticut Avenue provides four travel lanes for northbound traffic and two travel lanes for southbound. The eastbound Porter Street approach has one two0-foot wide travel lane. The westbound approach of Porter Street is composed of a left turn lane, a through lane and a dedicated right turn lane.

# ■ Intersection of Cleveland Avenue, Garfield Street and 32<sup>nd</sup> Street

The intersection of Cleveland Avenue, Garfield Street, and 32<sup>nd</sup> Street is a six-leg intersection controlled by a traffic signal. Cleveland Avenue is a divided street with two lanes in each direction to the southeast of the intersection, and one lane in each direction to the northwest of the intersection. In the northwest approach, Cleveland Avenue has a dedicated

left lane, a shared through and a right turn lane. Cleveland Avenue southeast approach has one shared left/through/right lane. Garfield Street extends in east-west direction. The eastbound approach of Garfield Street has one 24-foot travel lane in each direction. The westbound approach via Garfield Street is one way. 32<sup>nd</sup> Street runs north-south with one lane in each direction.

## ■ Intersection of 34th Street and Woodley Road

The intersection of 34<sup>th</sup> Street and Woodley Road is a four-leg signalized intersection. Woodley Road has one lane in each direction. Northbound 34<sup>th</sup> Street has two shared lanes. The southbound approach has one lane and left-turn movement is prohibited from 7:00 a.m. to 9:30 a.m. and again from 4:00 p.m. to 6:30 p.m.

### ■ Intersection of Klingle Road and Woodley Road

The intersection of Woodley Road and Klingle Road is an all-way stop sign controlled intersection with one lane on each approach.

# ■ Intersection of 32<sup>nd</sup> Street and Woodley Road

At the intersection of 32<sup>nd</sup> Street and Woodley Road, 32<sup>nd</sup> Street is controlled by a stop sign. Northbound 32<sup>nd</sup> Street extends in a north-south direction and terminates at Woodley Road. Woodley Road, posted for a speed limit of 25-miles per hour (mph) operates with one lane in each direction.

Photographs of the study locations are presented in Appendix D-1.

# 4. Traffic Volume Development Methodology

This section presents the methodology used to collect and develop traffic and transportation data within the study area. The traffic volume data collected was specifically used to establish existing and future traffic

volumes for the study locations. The proposed methodology is discussed in detail in the following sections.

### 4.1 Traffic Data Collection

The traffic data collected included manual turning movement counts, Automatic Traffic Recorder (ATR) counts, traffic classifications, physical inventories of the key intersections, and inventories of on-street parking. The data was used as the basis for analyzing the existing and future conditions of the study locations.

# 4.2 Development of Existing Traffic Volumes

Year 2000 existing traffic conditions were developed from the intersection turning movement counts provided by the DDOT. Field traffic data was summarized and analyzed to establish morning (AM) and evening (PM) peak hour traffic volumes. Figure 2 (Appendix D-3) depicts the existing AM peak hour traffic volumes at the intersection of Connecticut Avenue and Porter Street. Figure 3 depicts AM peak hour volumes at the other study locations west of Connecticut Avenue (Appendix D-3). These locations include the intersections of: 34<sup>th</sup> Street and Woodley Road, Cleveland Avenue/Garfield Street and 32<sup>nd</sup> Street, Woodley Road and Klingle Road, and Woodley Road and 32<sup>nd</sup> Street. Figures 4 and 5 depict the PM peak hour traffic volumes for the same locations as discussed above (Appendix D-3).

# 4.3 Development of Traffic Volumes for Future Conditions

To evaluate the traffic impacts of opening Klingle Road on the surrounding roadway network, future year traffic volumes were developed for no build conditions and three build condition scenarios. These future conditions include:

Year 2017 no build condition: Klingle Road remains closed.

- Year 2017 build conditions scenario 1: Rebuild Klingle Road to its original (existing) alignment, dimensions and repair/replace storm drainage to open for vehicular traffic.
- Year 2017 build conditions scenario 2: Reconfigure Klingle Road within existing right-of-way to improve alignment and drainage to open for vehicular traffic.
- > Year 2017 build conditions scenario 3: Build Klingle Road as a one lane (one-way) road and a pedestrian/bicycle lane.

### 4.3.1 No Build Traffic Volumes

Under the Year 2017 no build condition, it was assumed that Klingle Road remains closed and the surrounding road network has the same traffic patterns as under existing conditions along with background growth rate for 2017.

To develop no build traffic volume forecasts for the year 2017, a growth rate of one percent per year was used. This annual traffic growth rate factor was provided by the DDOT based on traffic growth trends in the Metropolitan area. This growth factor was applied to the year 2000 traffic volumes to project year 2017 no build traffic volumes.

Assuming a compound growth of one percent per year between 2000 and 2017, the overall growth from year 2000 to year 2017 was estimated to be approximately 18 percent. Figures 6 and 7 depict the projected AM peak hour traffic volumes at the study intersections (Appendix D-3). Figures 8 and 9 depict the projected PM peak hour traffic volumes at the study intersections (Appendix D-3).

### 4.3.2 Scenario 1: Rebuild Klingle Road to its Original Alignment

Under the Year 2017 build conditions scenario 1, it is assumed that Klingle Road will be restored to its original alignment and dimensions and that repairs or replacements are made as needed to the storm drainage. In this scenario, Klingle Road will regain the same function it had ten years ago. To develop traffic volumes under this condition for 2017, a traffic

diversion pattern was established. The methodology of developing traffic diversion patterns are summarized in the following steps:

Step 1: Establish the future peak hour traffic volumes on Klingle Road based on data collected in 1988 prior to closing the roadway. This is accomplished by projecting the 1988 traffic data using an annual background growth rate factor of 1 percent per year, compounded. Based on 1998's 24-hour traffic counts, provided by DDOT, Klingle Road carried 102 and 213 vehicles during AM and PM peak hours heading eastbound and 193 and 138 vehicles heading westbound during AM and PM peak hours. It is assumed by the year 2017 traffic volumes on Klingle Road would increase at the same rate (1 percent per year) as the surrounding roadway network. Based upon the estimate, eastbound Klingle Road would carry approximately 136 and 284 vehicles in AM and PM peak hours, respectively, and westbound Klingle Road will carry 258 and 184 vehicles during AM and PM peak hours.

Step 2: Identify the parallel roadways from where traffic will be diverted to Klingle Road if Klingle Road was open. Based on the existing traffic analysis and field investigations, the parallel east-west roadways that would divert traffic to Klingle Road have been identified as Porter Street to the north, Woodley Road, Cathedral Avenue and Cleveland Avenue to the south.

Step 3: Based on the existing traffic volumes along parallel roadways of Klingle Road, calculate the trip share percentages as a proportion of total traffic volume in the area, as shown on Table 1. Throughout the preparation of this study, construction has been underway at the intersection of Porter Street and Klingle Road. Due to this construction, motorist travel patterns were assumed to be altered therefore accurate travel patterns data cannot be established. Therefore, trip share percentage method was applied to estimate future traffic diversion on Klingle Road. Based on existing traffic volumes on the surrounding roadway network, a weighted percentage of traffic volumes were calculated from each parallel roadway from where traffic will be diverted to Klingle Road. Weighted distribution factors were developed based on additional distance to be

traveled. For example, cross-town traffic on Cleveland Avenue, Woodley Road and Cathedral Avenue has to use Duke Ellington Memorial Bridge to traverse in east-west direction. The distance from Klingle Road to the Duke Ellington Memorial Bridge is twice as long as the distance from Porter Street to Klingle Road. Therefore, weight factors were applied to the trip share percentage with Porter Street having a weight factor of 1 and all the south parallels have a weight factor of 0.5. Table 1 presents the trip share percentage calculations (Appendix D-3).

Step 4: Calculate diverted traffic volumes on to Klingle Road from each of the parallel roadways in accordance with the calculated trip share percentages in Step 3. Apply the calculated trip share percentages to the future projected traffic volumes, which were calculated in Step 1 for Klingle Road. The diverted traffic volumes for scenario 1, from all the parallel roads, were calculated and presented on Table 2. Figure 10 depicts the traffic diversion volumes (Appendix D-3).

By assigning the diversion traffic to the study network, build traffic volumes for scenario 1 were developed. Figures 11 and 12 depict the projected AM peak hour traffic volumes and Figures 13 and 14 depict the projected PM peak hour traffic volumes (Appendix D-3).

### 4.3.3 Scenario 2: Rebuild Klingle Road to Improved Alignment

Inherently, an improved alignment of a highway enhances capacity of the facility and thereby attracts more traffic. Under the build conditions Scenario 2, it is assumed that Klingle Road will be redesigned to improve features such as lane widths, shoulders, horizontal and vertical alignment, etc. These improvements will attract more traffic from its parallel routes. Based on the procedures outlined in the Highway Capacity Manual, it was determined that Klingle Road can accommodate up to 650 vehicles in both directions to operate at a Level of Service (LOS) D under typical conditions. Traffic volumes under this scenario would increase by approximately 35 percent more than the volumes estimated in Scenario 1. The resulting traffic volumes on Klingle Road under Scenario 2 would increase to 184 and 383 vehicles during AM and PM peak hours in the

eastbound direction, respectively, and 348 vehicles during AM peak hour and 248 vehicles during PM peak hour in the westbound direction. Applying the same methodology of scenario 1, traffic diversion was calculated as shown in Table 3 (Appendix D-3). Figure 15 shows the projected traffic diversion volumes for scenario 2 (Appendix D-3). Figures 16 through 19 delineate the projected scenario 2 volumes (Appendix D-3).

### 4.3.4 Scenario 3: Rebuild Klingle Road to a One Lane (One-Way)

Under this scenario, it is assumed that Klingle Road will be open to public for motor vehicle use as well as non-motorized use. One lane will be provided in the westbound direction, except from 4:00 PM to 6:30 PM, when a reverse in traffic operations (eastbound) would occur. The roadway alignment under this scenario would be on the existing alignment. Therefore, traffic using Klingle Road during the AM would be approximately 258 vehicles per hour in the westbound direction and approximately 284 vehicles per hour in the eastbound direction during the PM. This scenario takes advantage of the travel directional difference, which is predominantly westbound during the AM and eastbound during the PM. This scenario also provides pedestrian and bicycle access in the east-west direction across the park. Figures 20 - 23 present projected traffic volumes during AM and PM peak hours under scenario 3 (Appendix D-3).

# 5. Intersection Capacity Analysis Methodology

Operational traffic analysis was conducted to determine existing and future traffic operations using the methodology outlined in the latest version of Transportation Research Board (TRB) Special Report 209, the "Highway Capacity Manual" (HCM). Level of service analysis was performed for the five study intersections. The Highway Capacity Manual delineates levels of service from A to F. Following is an explanation of the levels of service for signalized and unsignalized intersections as described in the HCM.

# 5.1 Level of Service for Signalized Intersections

Level of service (LOS) for a signalized intersection is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, LOS criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period. Delay may be measured in the field or estimated using procedures outlined in the HCM. Delay is a complex measure and is dependent upon a number of variables, including the quality of progression, the cycle length, the green ratio, and volume to capacity (v/c) ratio for the lane group in question. The LOS criteria for signalized intersections is as follows:

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, or high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level is often believed to be unacceptable to most drivers and occurs with over saturation, or, when arrival flow rates exceed the capacity of the intersection. This may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

Level of Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SECONDS)
A	≤10.0
В	>10.0 AND ≤20.0
C	>20.0 AND ≤35.0
D	>35.0 AND ≤55.0
Е	>55.0 AND ≤80.0
_F	>80.0

### 5.2 Level of Service for Unsignalized Intersections

The capacity of an unsignalized intersection is evaluated in terms of critical gap size and the LOS is evaluated based on control delay per vehicle (in seconds per vehicle). Control delay includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay typically for a 15-minute analysis period. The LOS criteria for unsignalized intersections are defined in the 1997 HCM are as follows:

Level of Service Criteria for Unsignalized Intersections

LEVEL OF SERVICE	AVERAGE TOTAL DELAY (SEC/VEH)
A	≤10.0
В	>10.0 AND ≤15.0
C	>15.0 AND ≤25.0
D	>25.0 AND ≤35.0
Œ	>35.0 AND ≤50.0
F	>50.0

Average control delay of less than 10 seconds per vehicle is defined as LOS A, and an average control delay of 35 seconds per vehicle is the peak point between LOS D and E. The average control delays of LOS A, B, C and D are considered acceptable for unsignalized intersections, while those associated with LOS E and F are considered unacceptable. LOS F for unsignalized intersections is the result of average control delays in excess of 50 seconds per vehicle.

# 6. Existing Condition Analysis

# 6.1 Results of the Existing LOS Analysis

Tables 4 and 5 present the existing level of service for studied signalized intersections during AM and PM peak hours, respectively (Appendix D-3). Table 6 shows the existing AM and PM peak hour level of service for studied unsignalized intersections (Appendix D-3).

The analysis results revealed that Porter Street is experiencing excessive delays and poor level of service (LOS F). Both approaches of Cleveland Avenue at Garfield Street are also experiencing level of service F during AM peak hour. Additionally, Woodley Road eastbound operates with LOS F during AM peak hour. The results also indicate that the existing eastwest cross-town roadways paralleling Klingle Road are over crowded during the commuting peaks.

The existing traffic volumes at the unsignalized intersections of Woodley Road and Klingle Road, and Woodley Road and 32<sup>nd</sup> Street are relatively low, partly due to the closure of Klingle Road east of Cortland Place. In conclusion, the existing levels of service at these unsignalized locations are within acceptable levels.

# 6.2 Safety/Accident Analysis

The objective of the safety/accident analysis was to identify locations with a high number of accidents and further determine if a discernable pattern of accidents has occurred near the vicinity of the study area. The following locations were considered for the safety/accident analysis. It should be noted that accident data for intersection of Klingle Road with Woodley Road does not exist.

- > Intersection of Connecticut Avenue with Porter Street
- > Intersection of Klingle Road and Porter Street
- > Intersection of 34th Street and Woodley Road

The analysis and the results of the analysis are discussed below.

### 6.2.1 Accident Data

For the analysis, accident data were obtained from Highway Safety Improvement Program, DDOT records for the years 1993, 1994, and 1995 (latest years summarized) for the study area. The data was summarized for the three years period according to the following accident types:

- Right Angle
- Right Turn
- Rear End
- > Sideswipe
- ▶ Parked Car
- Fixed Object
- Pedestrian Accident
- Overtaking
- Backing

### 6.2.2 Results of the Accident Analysis

Over the three-year period between January 1993 and December 1995, 69 accidents occurred within the study area. None of these accidents was fatal. Table 7 provides a summary of accidents by year and type (Appendix D-3). As shown in the table, 33 accidents occurred in 1993; 19 occurred in 1994; and 17 occurred in 1995.

Of the 69 accidents that occurred during the three-year period, 56 accidents occurred at the intersection of Connecticut Avenue and Porter Avenue, one accident occurred at the intersection of Klingle Road and Porter Street and 12 occurred at the intersection of 34<sup>th</sup> Street and Woodley Road. It should be noted that the highest number of accidents occurred at the intersection of Connecticut Avenue and Porter Avenue. At this intersection, during the three-year period, two types of accidents, sideswipe and rear-end collisions, stand out as being prevalent. Since the detailed police reports for the above accidents were not available at the time of the analysis, it is not possible to determine the actual cause of these accidents. However, the overall number of accidents occurring during the three-year period was relatively normal for the study area.

# 6.3 Travel Speed Study

Field investigations on travel speed were conducted on Connecticut Avenue and Porter Street during both peak periods and off peak periods.

Connecticut Avenue: Speed runs were performed on Connecticut Avenue in the northbound and the southbound directions during both the peak and non-peak periods. Average northbound travel speed during AM peak periods is 17.3 mph. The average southbound travel speed during PM peak periods is 21.4 mph. Off-peak northbound travel speed averages 17.5 mph and 15.7 mph for southbound. As it is evident from the above data, the peak period travel speeds do not show any reduction from those of off peak travel. This can be attributed to the four travel lanes during off peak periods with curb parking at both sides on Connecticut Avenue. Curb parking is not allowed during peak periods and two more travel lanes are

added to the heavier traffic direction. The reopening of Klingle Road will significantly impact the travel speed on Connecticut Avenue.

**Porter Street:** Speed runs were also performed on Porter Street in the eastbound and westbound directions during peak and non-peak periods. It is important to note that Porter Street between Connecticut Avenue and Klingle Road was under construction when the travel speed investigation was conducted. The construction has had a direct impact on people's travel patterns. Therefore, the results cannot accurately reflect the true-field operations. This section will have two travel lanes in each direction once construction is complete. If Klingle Road were reopened, there would be stop delay reduction at the intersection of Porter Street and Connecticut Avenue, thereby improving travel speeds along Porter Street.

Summarized travel speed data is provided in Appendix D-2.

# 7. Future Condition Analysis

# 7.1 Results of LOS Analysis for No Build Conditions

Tables 8 and 9 present the no build level of service for the signalized intersections during AM and PM peak hours (Appendix D-3). Table 10 presents the no build level of service for the unsignalized intersections (Appendix D-3). Under the future no build conditions, level of service at all signalized intersections would continue to experience more delays when compared to the existing conditions. The intersection of 34<sup>th</sup> Street and Woodley Road would drop from LOS "D" to LOS "F" for the AM peak hour. The unsignalized intersections would continue to have acceptable level of services if the existing travel patterns were kept unchanged.

## 7.2 Results of LOS Analysis for Build Conditions Scenario 1

Results of the intersection levels of service analysis for build condition scenario I are presented in Tables 11 through 13 (Appendix D-3). Because of the traffic diversion, the roadways parallel to Klingle Road would experience reduction in traffic volumes, thereby improving LOS. Although

most of the intersection approaches would continue to operate with the same level of service as under the no build condition, average vehicle delays and volume to capacity (v/c) ratio would be significantly reduced. At the intersection of Porter Street and Connecticut Avenue, for example, Porter Street eastbound would operate with a v/c ratio of 1.53 and 1.39 during AM and PM peak hours, respectively. This is compared to the 2.93 during the AM and 2.81 during the PM v/c ratios under no build conditions. Porter Street westbound through movement will reduce its delay from 150.3 sec/veh (LOS F) to 40 sec/veh (LOS D) during AM peak hour and 40.7 sec/veh (LOS D) to 29.7 sec/veh (LOS C) during PM peak hours. The overall intersection LOS would be improved from no build LOS of F to build LOS of E during both AM and PM peak hours.

The intersection of Cleveland Avenue, Garfield Street, and 32<sup>nd</sup> Street would also receive improvements to all approaches compared to the no build conditions, except for 32<sup>nd</sup> Street. However, these improvements would not be as significant as those of Porter Street. Table 14 shows the improved intersections and approaches (Appendix D-3).

Reopening of Klingle Road would add diverted traffic to Woodley Road, thus negative traffic impacts are expected for intersections on Woodley Road. Results of level of service analyses conducted along Woodley Road are shown on Table 15 (Appendix D-3), reflecting deterioration of traffic operations due to the opening of Klingle Road. As can be concluded from the comparisons, although there is increase in delay at the unsignalized intersections, these intersections and approaches will continue to operate with LOS D or better during both peak hours analyzed, except at the intersection with 34<sup>th</sup> Street. At this intersection, Woodley Road would continue to experience delays and operate at LOS F during the AM peak hour condition.

## 7.3 Results of LOS Analysis for Build Conditions Scenario 2

Tables 16 through 18 present the results of level of service under build conditions scenario 2 (Appendix D-3). Under this scenario, it is expected that Klingle Road would carry more traffic as compared to the scenario 1,

thereby reducing traffic along its parallel routes and increased traffic volumes on Woodley Road.

The results indicate that the improvements in scenario 1 would experience further reduction in delay at most intersections. This does not include the intersection at Woodley Road at 34<sup>th</sup> Street, which would experience higher delays. The unsignalized intersections would operate with acceptable levels of service. The comparisons between no build and build scenario 2 conditions are presented in Tables 19 and 20 (Appendix D-3).

# 7.4 Results of LOS Analysis for Build Conditions Scenario 3

Results of LOS analysis conducted for this scenario are presented in Table 21 and 22 for signalized intersections and in Table 23 for unsignalized intersections (Appendix D-3). A review of these analyses indicate that traffic operations would improve in the westbound direction at the intersection of Connecticut Avenue and Porter Street during the AM peak hour and operations improve in the eastbound direction during the PM peak hour, compared to the no build scenario. Traffic operations at the intersection of 34<sup>th</sup> Street and Woodley Road would worsen in the westbound direction during the AM peak hour and in the eastbound direction during the PM peak hour. The unsignalized intersections would continue to operate at an acceptable LOS D or better.

# 8. Conclusion

As a part of the Options Analysis for the possible reopening of Klingle Road, a traffic study was conducted. The study included a comprehensive data collection task and traffic operational analyses for existing and various future scenarios. Under the future scenarios, analyses were performed for no-build and three build scenarios. A traffic safety analysis was also conducted to determine safety concerns in the proximity of Klingle Road.

Existing traffic operational analyses confirmed severe traffic congestion on east-west cross town roadways, which have received majority of diverted traffic resulting from the closure of Klingle Road in 1990. This traffic

congestion is expected to worsen over the years, if Klingle Road is to remain closed under the no-build condition.

For the future build conditions, traffic diversion patterns were assessed in order to quantify future operating conditions resulting from the opening of Klingle Road. The analysis of build conditions was performed for three (3) scenarios. The results of scenarios 1 and 2 indicate that any reopening of Klingle Road would lead to significant delay reduction on Porter Street and moderate delay reduction on Cleveland Avenue and Garfield Street. However, most of the already failed approaches at the study intersections will continue to operate with an unacceptable level of service. Woodley Road at 34<sup>th</sup> Street will experience a significant traffic volume increase and the already failed eastbound approach will experience more delays.

Of the five intersections analyzed in the study area, the results indicate that traffic operations at the intersection of Connecticut Avenue and Porter Street would experience the highest delays compared to the other intersections. As a part of this study, an analysis was conducted to determine various improvements required at this intersection for the design year under the no build scenario to achieve an acceptable level of traffic operation. Results of these analyses indicate that the eastbound approach of Porter Street needs to be widened to accommodate an additional two through lanes, while an additional through lane is needed in the westbound direction as well. Even if these improvements are implemented at this intersection, traffic congestion is expected to shift to other area intersections along Porter Street.

Results of the analysis conducted for scenario 3, indicate that the traffic operations would experience minimum improvements at the intersection of Connecticut Avenue and Porter Street as compared to Scenarios 1 and 2. The intersection of Cleveland Avenue and Garfield Street would experience minor improvements. However, scenario 3 takes advantage of travel directional differences during peak periods and provides an east-west bicycle/pedestrian transportation facility.

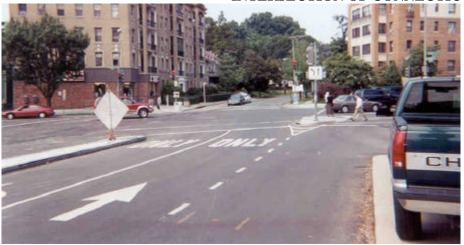
Safety analyses conducted in the study area reveal that there were approximately 69 crashes over a three-year period. The majority of these crashes, approximately 56, occurred at the intersection of Connecticut Avenue and Porter Street. Approximately 35 of the 56 crashes were either rear-end or sideswipe type crashes. These types of crashes are typical for an urban signalized intersection. In general, it is expected that the overall accidents in the study area could be reduced if Klingle Road was open due to the diversion of traffic from the intersection of Connecticut Avenue and Porter Street.

In conclusion, build scenario 2 would result in the greatest improvement in terms of delay reduction at four of the key intersections analyzed, followed by build scenarios 1 and 3, respectively. However, actual level of service, particularly those that are already at LOS E or F would not be substantially improved in most cases.

Transportation
Study
D-1: Photographs

District Division of Transportation

## INTERSECTION OF CONNECTICUT AVENUE AND PORTER STREET



Porter Street Looking West at Connecticut Avenue

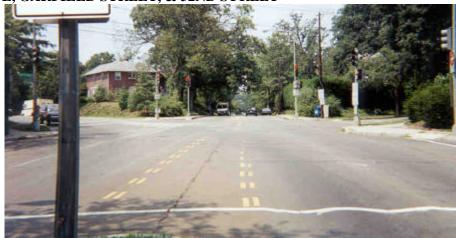


Connecticut Avenue Looking North at Porter Street

## INTERSECTION OF CLEVELAND AVENUE, GARFIELD STREET, & 32ND STREET



Cleveland Avenue Looking South at Garfield Street



Cleveland Avenue Looking North at Garfield Street

The Louis Berger Group, Inc.

Klingle Road Transportation Study <u>District Division of Transportation</u>

### INTERSECTION OF 34TH STREET AND WOODLEY ROAD



34th Street Looking South at Woodley Road



Woodley Road Looking East at 34<sup>th</sup> Street

### INTERSECTION OF WOODLEY ROAD AND KLINGLE ROAD



Klingle Road Looking East at Woodley Road

## INTERSECTION OF WOODLEY ROAD AND 32ND STREET



Woodley Road Looking West at 32<sup>nd</sup> Street

The Louis Berger Group, Inc. **D-1-**2

Transportation
Study
D-2: Data
Summary Sheets

Inter: 34th Street & Woodley Road

City/St: Washington D.C. Proj #: JA-2249

Analyst: LB Date: 8/17/00 2/W St: Woodley Road

Period: Existing PM Peak Hour N/S St: 34th Street

		SIC	GNALIZED	INTERSE	CTION	SUMMAR	Y			
	Eas	tbound	Westh	oound	Nor	thbour	id	South	bound	
	L	T Ř	L	ר ד	L	T	R	L I	R	
No. Lane		1 0	0	1 0	0	2	0		1 0	-{
LGConfig		LTR		TR	ļ	LTR	ł		R	
Volume Lane Wid	30	18 96	1 0	0		889 6	•		0 0	]
RTOR Vol		14.0	1 10	0.0	1	10.0		13	0.0	{
RIOR VOI		Ū	ı	· ·	1	·	, ,		U	r
Duration	0.25	Area ?		l other						
	mbination			4		-5	6	7	8	
EB Left		P		NB		P				
Thru		P			Thru	₽				
Righ Peds		X		ł	Right Peds	×				
WB Left		P		SB		P				
Thru		ř.		1 26	Thru	P				
Righ	it	P		ł	Right					
Peds		Х			Peds	Х				
NB Righ				) EB	Right					
SB Righ	it	or o		WB	Right					
Green Yellow		25.0 4.0				53.0 4.0				
All Red		2.0				2.0				
	ngth: 90,					2.0				
			ction Pe	rformanc	e Summ	ary				
	Lane	Adj Sat	Rati			Group	Appr	oach		
	Group	Flow Rate	<del>-,</del>						-	
Grp	Capacity	(s)	V/c	g/C	Delay	LOS	Delay	LOS		
Eastboun	d									
LTR	399	1437	0,47	0.278	31.0	С	31.0	С		
Westbour	ıd									
LTR	408	1470	0.01	0.278	23.6	С	23.6	C		
Northbou	ınd									
LTR	1613	2739	0.75	0.589	17.0	В	17.0	В		
Southbou	nd									
TR	1134	1925	0.18	0.589	8.8	A	8.8	A		
	Intersec	tion Delay	<b>= 17.7</b>	(sec/ve	h) I	nterse	ction	LOS =	В	

### HCS: Signalized Intersections Release 3.1c

Inter: 34th Street & Woodley Road Analyst: LB

City/St: Washington D.C. Proj #: JA-2249 Period: Existing AM Peak Hour

Date: B/17/00 E/W St: Woodley Road

N/S St: 34th Street

<del></del>			NALIZEI	INTERSE	CTION S	UMMAR	Y_	_		
	Eas	tbound T R	Westh L			hboun			bound R	T
	"	}	7. 1	. к	L	T	R ]	ים	R	1
No. Lanes	0	1 0	0	1 0	0	2	ō— -	0	1 0	-[
LGConfig	1	LTR		JTR	ì	LTR	1		r.	ı
Volume		17 260	1 0	0		60 2			4 18	
Lane Width RTOR Vol	1	14.0	10	}.0 o	1	0.0	-	13	3.0	Ĭ
	<u> </u>				1	0	i		0	1
Duration	0.25	Area T	ype: Al	l other al Operat	areas					
Phase Combi	nation		3	4		5	6	7	8	
EB Left		P		Ви	Left	P				
Thru Right		P P			Thru	P				
Peds		X		ļ	Right	v				
WB Left		P		SB	Peds Left	X P				
Thru		P		36	Thru	P				
Right		P			Right	F				
Peds		X		)	Peds	х				
NB Right				EB	Right	~				
SB Right				WB	Right					
Green		19.0		,	-	59.0				
Yellow		4.0				4.0				
All Red		2.0				2.0				
Cycle Lengt	h: 90.	0 secs Intersec	tion De		0 C.Imma					
Appr/ Lan	e	Adj Sat	Rati		e summa Lane G	ry	Appr	ozek		
Lane Gro		Flow Rate	1.00	.05	Harre G	Toup	Whht	Oacn		
	acity	(8)	V/C	g/C	Delay	LOS	Delay	LOS	-	
Eastbound										
LTR 30	4	1439	1.19	0.211	149.2	F	149.2	F		
Westbound										
LTR 27	3	1293	0.01	0.211	28.2	С	28.2	С		
Northbound										
LTR 12	69	1936	0.48	0.656	9.1	A	9.1	A		
Southbound										
TR 11	11	1694	0.97	0.656	35.8	D	35.8	D		

Inter: 34th Street & Woodley Road

City/St: Washington D.C.

Analyst: LB
Date: 8/17/00
E/W St: Woodley Road

Proj #: JA-2249
Period: 2017 No Build AM Peak Hour

N/S St: 34th Street

		SIGNA	LIZED	INTERSE	TION S	SUMMAR	<i>t</i>			
-	Eastbou		Westbo			rpponuc			bound	- 1
	L T	R L	Т,	R	L	T I	`   L	T	R	_
No. Lanes	0 1	o -	0 1		0	2 (			1 0	_
LGConfig Volume	14 20	307 1	LT 0	к 0 I	67	LTR 543 2			'R 26 21	]
Lane Width	1		10.			10.0	Į.		.0	- 1
RTOR Vol	. }	0		0		0	J		0	
Duration	0.25	Area Typ		other a						
Phase Comb	ination 1			4	.0115	5	6	7	8	
EB Left	P			NB	Left	Þ				
Thru	P			- {	Thru	P				
Right	P 4				Right					
Peds	X			J	Peds	X				
WB Left	P P			SB	Left	þ				
Thru	P P			l l	Thru	₽				
Right Peda	X	1		ł	Right	х				
NB Right	Α.			EB	Peds Right	^				
SB Right				WB	Right					
Green	19.0			1 45	Kigne	59.0				
Yellow	4.0					4.0				
All Red	2.0					2.0				
Cycle Lend		secs								
<b>-</b> 2		ntersecti	on Per	formance	2 Summa	ary				
Appr/ La		j Sat	Ratio			Group	Appro	ach		
	coup Flo	w Rate								
Grp Ca	pacity	(s) v	7c	<u>97c</u>	Delay	LOS	Delay	LOS	-	
Eastbound							~			
LTR 3	03 14	37 - 1	. 39	0.211	231.3	F	231.3	F		
Westbound										
LTR 2	249 11	79 0	.02	0,211	28.2	G	28.2	С		
Northbound	l									
L'TR	209 18	45 0	.58	0.656	10.7	В	10.7	В		
Southbound	i									
TR I	.111 16	94 1	.09	0.656	69.5	E	69.5	E		
1	ntersection	Delay =	80.9	(sec/vel	1) I	nterse	ction I	LOS ≈	F	

#### HCS: Signalized Intersections Release 3.1c

Inter: 34th Street & Woodley Road Analyst: LB Date: 8/17/00 E/W St: Woodley Road

City/St: Washington D.C. Proj #: JA-2249 Period: 2017 No Build PM Peak Hour N/S St: 34th Street

<del></del>	<del>-</del>	astbound	GNALIZEL Westb	) INTERSE		thboun		South	hbound	-
	ľ.	T R	L T		F			L	T R	
No. Lan LGConfi	g	0 1 0 LTR	OI	1 0 TR	0	LTR	0	0	1 0 TR	_
Volume Lane Wi RTOR Vo		21 113 14.0 9	1 0	0 0		1049 7 10.0 0	(		24 0 .3.0 0	
Duratio	on 0.2	5 Area		l other						
Phase C	Combinati	on 1 2	3	4	.10118	5	6	7	8	
EB Lef	t	P P	•	NB	Left Thru	P P		ŕ	-	
Rig	jht	Þ		1	Right					
Ped	is	х		1	Peds	X				
₩B Lef		₽		SB	Left	Þ				
Thr		Þ		i	Thru	Þ				
Rig	jht	Þ			Right					
Ped	ls	X		]	Peds	X				
NB Rig				EB	Right					
SB Rig	ht			MB	Right					
Green		25.0				53.0				
Yellow		4.0				4.0				
All Red	1	2.0				2.0				
Cycle L	ength: 9	0.0 secs								
	-	Interse	ection Pe	rformanc	e Summ	ary				
Appr/	Lane	Adj Sat	Rati	.os	Lane (	Group	Appr	oach		
Lane	Group	Flow Rate	2			-				
Grp	Capacit	<b>д</b> (в)	v/c	g/C	Delay	LŌS	Delay	LOS	_	
Eastbou	ind			<del>,</del>						
ĻTR	398	1433	0.56	0.278	33.3	C	33.3	С		
Westbou	ınd									
ĻTR	404	1455	0.01	0.278	23.6	C	23.6	С		
Northbo	ound									
LTR	1577	2678	0.87	0.589	22.1	С	22.1	С		
Southbo	ound									
	1134	1925	0.21	0.589	9.1	A	9.1	A		
TR	1134	1243	0.24	0.505	J. 1	-	J. <u>-</u>			

Inter: 34th Street & Woodley Road Analyst: LB Date: 8/17/00 E/W St: Woodley Road

City/St: Washington D.C.

Proj #: JA-2249 Period: 2017 Build AM Peak Hour

N/S St: 34th Street

				INTERSE				
	Eas L	stbound T R	Westb			hbound P R	South! L T	oound R
No. Land LGConfid Volume	9   14	1 0 LTR 156 271	1 25	1 0 TR 8 0	34 54	2 0 LTR 43 2	0 TF	
Lane Wi		0 0	10	0	16	0.0	13	0
Duration	n 0.25	Area		l other l Operat				
EB Lef Thr	u	P P	3	4 NB	Left Thru	5 6 P P	7	8
Rigi Ped: WB Lef: Thr: Rigi	s t u	P X P P		SB	Right Peds Left Thru Right	X P P		
Ped NB Rig SB Rig Green	s ht	X 19.0		EB WB	Peds Right Right	X 59.0		
Yellow All Red Cycle L	ength: 90.				2	1.0 2.0		
Appr/ Lane	Lane Group	Intersec Adj Sat Flow Rate	Rati	rformand os	Lane Gr		roach	<del>-</del>
Grp	Capacity		v/c	g/c	Delay I	JOS Dela	y LOS	
Eastbour	nd				<del></del>			
LTR	298	1413	1.84	0.211	424.3	F 424.	3 F	
Westbou	nd							
LTR	366	1736	0.80	0.211	49.9	D 49.9	D	
Northbou	und							
LTR	1318	2011	0.50	0.656	9.3	A 9.3	A	
Southboo	und							
TR	1111	1694	1.09	0.656	69.5	E 69.5	E	
	Intersec	tion Delay	= 124.6	(sec/ve	h) Int	ersection	LOS = F	•

### HCS: Signalized Intersections Release 3.2

Inter: 34th Street & Woodley Road

City/St: Washington D.C. Proj #: JA-2249

Analyst: LB Date: 8/17/00 E/W St: Woodley Road

Period: 2017 Build PM Peak Hour N/S St: 34th Street

	77.00				CTION S			-		
		bound T R	Westh L 1			:hboun T			nbound r R	
	"	1 10	,		<u>"</u>		`   '	_		' 1
No. Lanes	0	1 0	0	1 0	-		<del></del> -	Ō	i 0	<del></del>
LGConfig		LTR	I	TR		LTR	- }	- 1	rr	
Volume	35 3	05 82	1 16	34 0	176 1	049 7			24 0	
Lane Width	] 1	4.0	10	0.0	1	0.0		1	3.0	- 1
RTOR Vol	l	0	Ĭ	0		0	I		O	ļ
Duration	0.25	Area '		l other				<del></del>		
Phase Combi	nation	1 2	319116	4   .	.10116	5	6	7	B	
EB Left		P		NB	Left	₽				
Thru		P			Thru	P				
Right		P		- 1	Right					
Peds		X		\ \	Peds	X				
WB Left		P		SB	Left	P				
Thru		P		ľ	Thru	P				
Right		P		ļ	Right					
Peds		х		i	Peds	Х				
NB Right SB Right				EB	Right					
SH KICTER										
		<b>5</b> 6		₩B	Right					
Green	_	5.0		WB	_	53.0				
Green Yellow	4	. D		/ WB	_	4.0				
Green Yellow All Red	4	. D . O		/ WB	_					
Green Yellow All Red Cycle Lengt	4 2 h: 90.0	.0 .0 secs Intersec		rformanc	e Summa	4.0 2.0				
Green Yellow All Red Cycle Lengt	4 2 h: 90.0	.0 .0 secs Intersec Adj Sat	ction Pe Rati	rformanc	_	4.0 2.0	Appro	oach		
Green Yellow All Red Cycle Lengt Appr/ Land Lane Gro	4 2 h: 90.0 e up	.0 .0 secs Intersec Adj Sat Flow Rate	Rati	erformanc	e Summa Lane C	4.0 2.0 ry				
Green Yellow All Red Cycle Lengt Appr/ Lan Lane Gro	4 2 h: 90.0	.0 .0 secs Intersec Adj Sat		rformanc	e Summa	4.0 2.0 ry				
Green Yellow All Red Cycle Lengt Appr/ Lan Lane Gro	4 2 h: 90.0 e up	.0 secs Intersec Adj Sat Flow Rate	Rati	erformanc	e Summa Lane C	4.0 2.0 ry				
Green Yellow All Red Cycle Lengt Appr/ Lane Gro Cap Eastbound	4 2 h: 90.0 e up acity	.0 secs Intersec Adj Sat Flow Rate	Rati	erformanc	e Summa Lane C	4.0 2.0 ry Eroup		Los		
Green Yellow All Red Cycle Lengt Lane Lane Gro Cap  Eastbound	4 2 h: 90.0 e up acity	.0 secs Intersec Adj Sat Flow Rate (s)	Rati v/c	erformanc os g/Ĉ	e Summa Lane G Delay	4.0 2.0 ry Eroup	Delay	Los		
Green Yellow All Red Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 43	h: 90.0 e up acity	.0 secs Intersec Adj Sat Flow Rate (s)	Rati v/c	erformanc os g/Ĉ	e Summa Lane G Delay	4.0 2.0 ry group Los	Delay	LOS F	-	
Green Yellow All Red Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 43	h: 90.0 e up acity	.0 .0 secs Intersec Adj Sat Flow Rate (s)	Rati v/c 1.16	erformances g/C 0.278	Delay	4.0 2.0 ry group Los	Delay 126.2	LOS F	-	
Green Yellow All Red Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 43: Westbound LTR 48: Northbound	h: 90.0 e up acity 8	.0 .0 secs Intersec Adj Sat Flow Rate (s)	Rati v/c 1.16	erformances g/C 0.278	Delay	4.0 2.0 Eroup Los	Delay 126.2	LOS F	_	
Green Yellow All Red Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 43: Westbound LTR 48: Northbound	h: 90.0 e up acity 8	.0 .0 secs Intersec Adj Sat Flow Rate (s)	Rati v/c 1.16	g/C 0.278	e Summa Lane G Delay  126.2	4.0 2.0 Eroup Los	Delay 126.2	LOS F	_	
Green Yellow All Red Cycle Lengt Lane Gro Grp Cap  Eastbound LTR 43: Westbound LTR 48: Northbound LTR 166	4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	.0 .0 secs Intersec Adj Sat Flow Rate (s)	Rativ/c  1.16  0.48	g/C 0.278	e Summa Lane G Delay  126.2  30.4	4.0 2.0 Eroup Los	Delay 126.2	LOS F	-	

Inter: 34th Street & Woodley Road

City/St: Washington D.C. Proj #: JA-2249

Analyst: LB Date: 8/17/00

Period: 2017 Build AM Peak w Mitigatio

E/W St: Woodley Road N/S St: 34th Street

		SIGNAL	IZED IN	TERSEC	TION S	SUMMARY	ľ			
	Eastbou	ind   W	lestboun	d	Nort	hbound	1	Sout!	abound	[
	l r	RL	T	R .	L .	T F	3	L I	r R	_
No. Lanes	0 1	0	0 1	0	0	2 (	<del>-</del>  -	0	1 0	_
LGConf1g	LT	₹	LTR			LTR			'R	
Volume	14 204	271 1	348	0		543 2	- 1		26 21	
Lane Width	14.0	0	10.0		1	10.0	- !	13	3.0	1
RTOR Vol	1	0	1	0		o	1,		а	- 1
Duration	0.25	Area Type	: All o			· . —				
Phase Comb	ination 1	$\frac{1}{2}$		]		5	6	7	8	
EB Left	P			NB	Left	P				
Thru	P			ĺ	Thru	P				
Right	P				Right					
Peds	х				Peds	Х				
WB Left	P			SB	Left	P				
Thru	P				Thru	P				
Right	P				Right					
Peda	Х				Peds	Х				
NB Right				EB	Right					
SB Right				WB	Right					
Green	19.0	D				59.0				
Yellow	4.0					4.0				
All Red	2.0					2.0				
Cycle Leng		aeca .								
3/		Intersectio								
		ij Sat ow Rate	Ratios		Lane (	Group	Appr	oacn		
	oup Fig pacity	(s) ⊽7	c g/	7	Dolay	LOS	Delay	LOG	-	
		(3) ()	97	<u> </u>	Delay		Deray			
Eastbound										
LTR 2	77 13	311 2.	14 0.	211	559.2	F	559.2	F		
Westbound										
LTR 3	68 1.	745 1.	06 0.	211	99.9	F	99.9	F		
Northbound										
LTR 1	404 23	141 0.	45 0.	656	8.7	A	8.7	A		
Southbound										
TR 1	111 16	594 1.	09 0.	656	69.5	E	69.5	E		

#### HCS: Signalized Intersections Release 3.1c

Inter: 34th Street & Woodley Road

City/St: Washington D.C.

Analyst: LB

Date: B/17/00

LTR

Southbound

1611

2736

1925

Proj #: JA-2249 Period: 2017 Build PM Peak w Mitigatio N/S St: 34th Street

19.3 B

9.1

E/W St: Woodley Road

SIGNALIZED INTERSECTION SUMMARY Southbound Eastbound Northbound Westbound T T T T L No. Lanes 2 1 Ö 1 LGConfig LTR LTR LTR TR 404 71 248 0 170 1049 7 224 0 Volume 35 Lane Width 14.0 10.0 10.0 13.0 ٥ RTOR Vol 0 0

Durat:	ion 0.25	Area 7	Type: Al Sign	ll othe al Oper	r areas ations					
Phase	Combination	1 1 2	3	4		5 .	6	7	8	
EB Le	≘ft	P		N	B Left	P				
Ti	ìru	₽		- 1	Thru	₽				
	ight	P			Right					
	eds	X		- 1	Peds	Х				
	eft	P		S		P				
	nru	P			Thru	P				
	ight	P			Right					
Pe	eds	Х	ł	- 1	Peds	Х				
NB R				E						
	ight			) พ	B Right					
Green		25.0				53.0				
Yellov		4.0				4.0				
All Re		2.0				2.0				
Cycle	Length: 90.									
		Intersec								
Appr/	Lane	Adj Sat	Rat	ios	Lane	Group	Appro	bach		
Lane	Group	Flow Rate								
Grp	Capacity	(e)	v/c	g/C	Delay	LOS	Delay	LOS		
Eastbo	ound									
ĻTR	431	1553	1.35	0.278	205.9	F	205.9	F		
Westbo	ound									
						_		_		
LTR	488	1756	0.64	0.278	35.0-	Ċ	35.0-	С		
North	oound									

0.589

0.589

Intersection Delay = 64.8 (sec/veh) Intersection LOS = E

9.1

0.21

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C. Analyst: LB Proj #: JA-2249
Date: 8/23/00 Period: Existing AM Peak N/S St: Connecticut Ave.

Proj #: JA-2249
Period: Existing AM Peak Hour
N/S St: Connecticut Ave.

				<b>GNALI</b>	ZED II	NTERSE	CTION	SUMM	ARY				
	Ea	stbour	nd	Wes	stbou	nd	No	rthbo	und	So	uthbou	and	
	L	T	R	L	T	R	L	T	R	L	T	R	
	l			i									1
No. Lanes	0	1	0	1	1	<del>-</del> -	O	2	0	0	4	0	1
LGConfig		LTR		L	T	R		LTR			LTR		
Volume	14	412	48	119	464	229	0	557	76	229	2452	32	
Lane Width		12.0		10.0	10.0	10.0		10.0			10.0		
RTOR Vol			0			0			0			0	

Dur	ation	0.25	Area	Type:	A11	other	areas					
				Si	gnal	Operat	ions					
Pha	se Combi	nation 1	2	3	- 4	Ì		5	6	7	8	
EB	Left	P				NB	Left	-	P		-	
	Thru ·	P				' -	Thru		P			
	Right	P					Right		P			
	Peds	X					Peds		X			
WB	Left	P				SB	Left	P				
	Thru	P				]	Thru	P	₽			
	Right	P					Right	P	₽			
	Peds	Х					Peds	X	X			
NB	Right					EB	Right					
SB	Right					WB	Right					
Gre		26.0				•	-	27.0	27.0			
	low	4.0							4.0			
All	Red	1.0						0.0	1.0			
CVC	le Lenati	h: 90.0	sers					•				

		Intersed	tion Pe	rformano	e Summa	ry		
Appr/ Lane	Lane Group	Adj Sat Flow Rate	Rati	30	Lane G	roup	Appro	ach
Grp	Capacity	(s)	v/c	g/C	Delay	LOS	Delay	LOS
Eastbo	und	<del></del>				-		
LTR	284	984	2.14	0.289	557.0	F	557.0	F
Westboo	und							
L	80	265	2.13	0.289	577.7	F		
Ţ	497	1722	1.10		102.0	F	167.5	F
R Northbo	418 ound	1447	0.61	0.289	34.0	С		
LTR	969	3229	0.83	0.300	37.4	D	37.4	D
Southbo	ound							
LTR	3698	6164	0.78	0.600	15.3	В	15.3	В
	Intersec	tion Delay	= 109.2	(sec/ve	h) In	terse	ction I	OS = F

### HCS: Signalized Intersections Release 3.1c

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C.
Analyst: LB Proj #: JA-2249

Date: 8/23/00 E/W St: Porter St.

Period: Existing PM Peak Hour

N/S St: Connecticut Ave.

		SI	GNALIZEI	) INTERSE	CTION	SUMMAF	₹Y				
	Eas	stbound	Westh	ound	Nor	thbour	id T	Soi	it hbo	und	Т
,	L	T R	L 1	R	L	T	R	L	T	R	1
No. Lan	les - 0	1 0	1	1 1	1- <del></del>	4	<del>-</del>	0	2	0	1
LGConfi		LTR	_	r R	١ ،	LTR	٠	U	LTR	U	
Volume	27	540 22	100 26		12	1364 9	9 1	.2	524	27	l
Lane Wi	.dth	12.0		.0 10.0	1	10.0	· 1.		10.0	• .	!
RTOR Vo	1	0		0		0	,		10.0	0	
Duratio	on 0.25	Area		l other						•••	
Phace C	ombinatio	1 2	Signa 3	ıl Operat	ions_						
EB Lef		P 2	3	4 NB	Left	5	6 P	7		8	
Thr		P		I NA	Thru		P				
Rig		P			Right		P				
Ped		x			Peds		X				
WB Lef		P		SB	Left	P	^				
Thr	·u	P		35	Thru	P	P				
Riq	ht	P			Right		P				
Peď	ទេ	x		\	Peds	X	x				
NB Rig	ht			ЕB	Right	**					
SB Rig	ht			WB	Right						
Green		25.0		1	J u	16.0	39.0				
Yellow		4.0					4.0				
All Red		1.0				0.0	1.0				
Cycle L	ength: 90.										
		Intersed		rformanc	e Summa	ary					
Appr/	Lane	Adj Sat	Rati	OB	Lane (	Group	Appr	oach	i		
Lane	Group	Flow Rate									
Grp	Capacity	(s)	v/c	g/C	Delay	LOS	Delay	LOS			
Eastbou	nd										—
LTR	351	1264	2.00	0.278	491.3	F	491.3	F			
Westbou	nd	4									
L	80	275	1.50	0.278	311.9	F					
T	478	1722	0.64	0.278	35.1	Ď	95.8	F			
R	402	1447	0.26	0.278	26.9	č	23.0	-			
Northbo	und					•					
LTR	2505	5780	0.66	0.433	21.6	C	21.6	C			
Southbo	und										
LTR	1997	3268	0.30	0.611	8.7	A	8.7	A			
		tion Delay		_	-				_		
		TIOD DETAIL	= 125.2	ISEC/VE	mı I≀	nrerse	ction	LOS	= F		

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C.

Proj #: JA-2249

Analyst: LB Date: 8/23/00 E/W St: Porter St.

Period: 2017 No Build AM Peak Hour

N/S St: Connecticut Ave.

	East	bound	<del></del>	م ا	stbou	ind	CTION	thbou		Sc	uthbo	und	
	L	T	R	L"	T	R	L	T	R	L	Т	R	ļ
No. Lanes	0	1	0		<u>·</u>		<del></del>		0	<del></del>	4	0	
LGConfig	"	LTR	U	L	T	R	l 0	LTR	U	ľ	LTR	-	- 1
Volume	17 4		7	140	548	270	o	657	90	270	2893		Į.
Lane Width		12.0	,			10.0	١,	10.0	30	2 , 0	10.0		
RTOR Vol	1 ,		)	10.0	10.0			10.0	0		10.0	0	
RICK VOI	1	,	,	I		0	1		U	ı		·	ţ
Duration	0.25	I	Area '			other Operat							
Phase Combi	nation	1	2	3*		4	10115_	5	6	7		В	
EB Left		P				NB	Left		P				
Thru		P					Thru		P				
Right		P					Right	:	P				
Peds		X				- i	Peds		Х				
WB Left		P				SB	Left	P					
Thru		P					Thru	P	P				
Right		P					Right	_	₽				
Peds		X		1		- 1	Peds	x	X				
NB Right		**				ЕВ	Right		••				
SB Right						WB	Right						
Green	-	26.0				1 ""	Kagni	27.0	27.	O.			
Yellow													
									4 0				
All Ded		4.0						0 0	4.0				
	1	1.0	1000					0.0	4.0 1.0				
	1	1.0 D £	secs	ction	Deri	formano	e Summ						
Cycle Lengt	h: 90.0	1.0 0 & Int	erse			formanc		ary_	1.0		·h		
Cycle Lengt Appr/ Lan	h: 90.0	1.0 0 £ Int Adj	erse Sat	R	Peri atios		e Summ Lane	ary_	1.0	proac	h		
Cycle Lengt Appr/ Lan Lane Gro	h: 90.0	1.0 0 & Int Adj Flow	erse Sat Rate	R	atios	€	Lane	ary Group	1.0 Ap	proac			
Cycle Lengt Appr/ Lan Lane Gro	h: 90.0	1.0 0 & Int Adj Flow	erse Sat	R	atios			ary Group	1.0 Ap				
Cycle Lengt Appr/ Lan Lane Gro Grp Cap	h: 90.0	1.0 0 & Int Adj Flow	erse Sat Rate	R	atios	€	Lane	ary Group	1.0 Ap	proac			***
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound	h: 90.0 e oup acity	1.0 0 & Int Adj Flow	erse Sat Rate	R	atios	€	Lane	Group	1.0 App	proac	s 		
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 22	h: 90.0 e oup acity	1.0 0 & Int Adj Flow (s	erse Sat Rate	v/c	atios	∍ ⊒7c ———	Lane Delay	Group	1.0 App	proac	s 		
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 22 Westbound	h: 90.0 le lup acity	1.0 0 & Int Adj Flow (s	erse Sat Rate	2.9	atios	9 9/C 0.289	Delay	Group Group LOS	1.0 App	proac	s 		
Appr/ Lan Lane Gro Grp Cap Eastbound LTR 22 Westbound L 80	h: 90.0	1.0 0 & Int Adj Flow (s	erse Sat Rate	2.9	atios 3 (	3/C 3/C 0.289	Delay 910.3	Group Group LOS	1.0 Dela	proac ay LO	s	<del> </del>	
Appr/ Lan Lane Gro Grp Cap Eastbound LTR 22 Westbound L 80 T 49	h: 90.0	1.0 0 £ Int Adj Flow (s 788 265 1722	Sat Rate (5)	2.9 2.5 1.2	3 (0 (3 (3 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4	3/C 3/C 0.289 0.289 0.289	Delay 910.3 742.6 150.3	Group Group LOS F	1.0 App	proac ay LO	s		
Appr/ Lan Lane Gro Grp Cap Eastbound LTR 22 Westbound L 80 T 49 R 41	h: 90.0	1.0 0 & Int Adj Flow (s	Sat Rate (5)	2.9	3 (0 (3 (3 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4	3/C 3/C 0.289	Delay 910.3	Group Group LOS	1.0 Dela	proac ay LO	s		
Lane Gro Grp Cap Eastbound LTR 22 Westbound L 80 T 49 R 41 Northbound	h: 90.0	1.0 0 f Int Adj Flow (s 788 265 1722	Sat Rate (S)	2.9 2.5 1.2 0.7	3 (0 3 (2) (2)	0.289 0.289 0.289 0.289 0.289	Delay 910.3 742.6 150.3 38.8	Group Group LOS	1.0 Del	proac ay LO	is .		
Appr/ Lan Lane Gro Grp Cap Eastbound LTR 22 Westbound L 80 T 49 R 41 Northbound	h: 90.0	1.0 0 £ Int Adj Flow (s 788 265 1722	Sat Rate (S)	2.9 2.5 1.2	3 (0 3 (2) (2)	3/C 3/C 0.289 0.289 0.289	Delay 910.3 742.6 150.3	Group Group LOS F	1.0 Dela	proac ay LO	is .		
Appr/ Lan Lane Gro Grp Cap Eastbound LTR 22 Westbound L 80 T 49 R 41 Northbound	h: 90.0	1.0 0 f Int Adj Flow (s 788 265 1722	Sat Rate (S)	2.9 2.5 1.2 0.7	3 (0 3 (2) (2)	0.289 0.289 0.289 0.289 0.289	Delay 910.3 742.6 150.3 38.8	Group Group LOS	1.0 Del	proac ay LO	is .		
Appr/ Lan Lane Gro Grp Cap Eastbound LTR 22 Westbound L 80 T 49 R 41 Northbound LTR 96 Southbound	h: 90.0	1.0 0 f Int Adj Flow (s 788 265 1722	cerse Sat Rate 5)	2.9 2.5 1.2 0.7	3 (3 (3 (3 (2 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4	0.289 0.289 0.289 0.289 0.289	Delay 910.3 742.6 150.3 38.8	Group Group LOS	1.0 Del	proace ay LO .3 f	S		

#### HCS: Signalized Intersections Release 3.1c

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C.

Analyst: LB

Proj #: JA-2249

Period: 2017 No Build PM Peak Hour N/S St: Connecticut Ave.

Date: 8/23/00 E/W St: Porter St.

		SIC		INTERSE						
		bound	Westb			thboun			thbou	
	L	T R	ь т	R	L	T	R	L	T	R
No. Lanes	]	1 0	i	1 1	1 <del></del>	4	<del>o</del>		2	0
LGConfig	ľ	LTR	ĹТ		*	LTR	ľΙ	•	LTR	- I
Volume	32	537 26	118 30		14	1610 1	17	14		32
Lane Width		12.0		0.0 10.0		10.0	• '		10.0	-
RTOR VOL	l '	0	10.0 10	0		0.0	.			0
	·		,		1					
Dúration	0.25	Area :		l other al Operat						
Phase Combi	nation	1 2	3	4		5	6	7	8	
EB Left		P		NВ	Left		P			
Thru		P			Thru		₽			
Right		P			Right		₽			
Peds		X			Peds		х			
WB Left		P		SB	Left	₽				
Thru		P		] _	Thru	P	P			
Right		P		1	Right	P	P			
Peds		X		i	Peds	X	x			
NB Right				EB	Right					
SB Right				WB	Right					
Green		25.0		,		16.0	39.0	1		
Yellow		4.0					4.0			
All Red		1.0				0.0	1.0			
Cycle Lengt						0.0	2.0			
			ction Pe	rformanc	e Summ	ary		_		
Appr/ Lan	e	Adj Sat	Rati	os	Lane	Group	App	roach		
Lane Gro	up	Flow Rate				-				
Grp Cap	acity	(s)	v/c	g/c	Delay	LOS	Dela	y LOS		
Eastbound										
LTR 29	4	1060	2.81	0.278	857.7	F	857.	7 F		
	•					•				
Westbound L 80		275	1.77	0.278	426.8	P				
L 80 T 47			0.76	0.278	420.8	D	125.	2 F		
T 47 R 40	_	1722 1447	0.76	0.278	27.7	C	125.	2 F		
n Northbound	2	1447	0.31	0.278	27.7	C				
LTR 24	97	5763	0.78	0.433	24.3	c	24.3	c		
Southbound										
LŤR 19	97	3268	0.36	0.611	9.2	A	9.2	A		
In	tersec	tion Delay	= 204.7	/ (sec/ve	h) I	nterse	ction	LOS	= <b>F</b>	

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C. Analyst: LB Proj #: JA-2249
Date: 8/23/00 Period: 2017 Build AM Period: St: Porter St. N/S St: Connecticut Ave.

Proj #: JA-2249 Period: 2017 Build AM Peak Hour

N/S St: Connecticut Ave.

	Ea	stbour			stbou		CTION   Nor	thbou		Sou	ithbo	und	- 1
	L	T	R	L	T	R	L	T	R	L	T	R	
No. Lanes	<del></del>	1	0	$-\frac{1}{1}$	1	1	<del></del>		0	<del></del>	4	0	
LGConfig	`	LTR	•	Ī.	T	R	-	LTR	•	_	LTF		- 1
Volume	17	395	57	140	343	270	lo l	657	90	270	2893		- 1
Lane Width	* '	12.0	٠,			10.0	1	10.0	,,	12.0	10.0		- 1
RTOR Vol		12.0	0	1-0.0	10.0	0		10.0	0	1		0	- 1
	<u>'</u>						<u></u>			, 			
Duration	0.25		Area			other Operat							
Phase Combi	natio		2	3	4	1		5	6	7		8	
EB Left		P				NB	Left		P				
Thru		P					Thru		P				
Right		P					Right	:	P				
Peds		x					Peds		Х				
WB Left		₽				SB	Left	₽					
Thru		P				1	Thru		P				
Right		P					Right		P				
Peds		Х					Peds		Х				
NB Right						EB	Right						
SB Right	•					WB	Right	:					
Green		26.0					-	27.0	27.0	0			
Yellow		4 0											
		4.0							4.0				
		1.0						0.0	4.0 1.0				
	h: 90	1.0	secs										
Cycle Lengt		1.0 .0 Ir	nterse				e Summ	ary	1.0				
Cycle Lengt Appr/ Lan	e	1.0 .0 Ir Ad	nterse j Sat	Ra	Perf atios		e Summ Lane	ary	1.0	proacl	n		
Cycle Lengt Appr/ Land Lane Gro	e up	1.0 .0 Ir Add	nterse j Sat w Rate	Ra	atios		Lane	ary_ Group	1.0 App				
Cycle Lengt Appr/ Land Lane Gro	e	1.0 .0 Ir Add	nterse j Sat	Ra	atios			ary_ Group	1.0 App	oroaci			
Cycle Lengt Appr/ Lan Lane Gro Grp Cap	e up	1.0 .0 Ir Add	nterse j Sat w Rate	Ra	atios		Lane	ary_ Group	1.0 App				
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound	e up acity	1.0 .0 Ir Add	nterse j Sat w Rate (s)	Ra	g	7 <del>c</del>	Lane Delay	Group	1.0	aý LO:			_
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 36	e up acity	1.0 .0 Ir Adj Flow	nterse j Sat w Rate (s)	v/c	g		Lane	Group	1.0				
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 36 Westbound	e up acity 	1.0 .0 Ir Add Flow	nterse j Sat w Rate (s)	7/c	g g	/C 289	Delay	Group LOS	1.0	aý LO:			_
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 36 Westbound L 80	e up acity 	1.0 .0 Ir Add Flow	nterse j Sat w Rate (s)	1.5:	g g g	.289	Delay 282.1	Group LOS F	1.0 App Dela	aý LO:			
Appr/ Lane Lane Gro Grp Cap  Eastbound  LTR 36  Westbound L 80 T 49	e up acity 7	1.0 .0 Ir Add; Flow	nterse j Sat w Rate (s)	1.53 2.56 0.7	g 3 0	.289 .289 .289	Delay 282.1 742.6 40.0	Group LOS F	1.0	aý LO:			
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 36 Westbound L 80 T 49 R 41	e up acity 7	1.0 .0 Ir Add Flow	nterse j Sat w Rate (s)	1.5:	g 3 0	.289	Delay 282.1	Group LOS F	1.0 App Dela	aý LO:			
Lane Grogry Cap.  Eastbound  LTR 36  Westbound  L 80  T 49  R 41  Northbound	e up acity 7	1.0 .0 Ir Add Flow	nterse j Sat w Rate (s) 72	1.5. 2.56 0.7	g 9 0 0 0 7 0 2 0	.289 .289 .289 .289	282.1 742.6 40.0 38.8	Group Group LOS F	1.0 App Dela 282	.1 F			-
Appr/ Lant Lane Gro Grp Cap  Eastbound  LTR 36  Westbound L 80 T 49 R 41  Northbound	e up acity 7	1.0 .0 Ir Add; Flow	nterse j Sat w Rate (s) 72	1.53 2.56 0.7	g 9 0 0 0 7 0 2 0	.289 .289 .289	Delay 282.1 742.6 40.0	Group LOS F	1.0 App Dela	.1 F			
Cycle Lengt Appr/ Lan Lane Gro Grp Cap Eastbound LTR 36 Westbound L 80 T 49 R 41 Northbound	e up acity 7	1.0 .0 Ir Add Flow	nterse j Sat w Rate (s) 72	1.5. 2.56 0.7	g 9 0 0 0 7 0 2 0	.289 .289 .289 .289	282.1 742.6 40.0 38.8	Group Group LOS F	1.0 App Dela 282	.1 F			
Appr/ Lance Groger Cape  Eastbound  LTR 36  Westbound  L 80  T 49  R 41  Northbound  LTR 96	re up acity	1.0 .0 Ir Add Flow	nterse j Sat w Rate (s) 	1.5. 2.56 0.7	g 0 0 0 7 0 0 2 0 9 0	.289 .289 .289 .289	282.1 742.6 40.0 38.8	Group Group LOS F	1.0 App Dela 282	.1 F			

### HCS: Signalized Intersections Release 3.1c

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C.

Analyst: LB Date: 8/23/00 E/W St: Porter St.

Proj #: JA-2249

Period: 2017 Build PM Peak Hour N/S St: Connecticut Ave.

	Eas	tbound		ound	CTION S Nort	hboun		Sou	thbo	ınd	-T
	L	T R	L 1	R	L		R	L	T	R	
N			-J <i>-</i>				_				_[
No. Lan		1 0	1 1 _	1 1	0	4	0	0	2	0	١
LGConfi		LTR		r R	)	LTR			LTR		- {
Volume	32	411 26	118 17			1610 1	.17  1	4	618	32	1
Lane Wi		12.0	10.0 10	0.0 10.0	1 :	10.0			10.0		- 1
RTOR Vo	o1	o	J	0	1	a	) ]			0	ļ
Duratio	n 0.25	Area	Type: Al	l other							
Phase C	ombination	1 2	319116	4	.10119	5	6	7		B	
EB Lef	t	P		NB	Left	-	P			•	
Thr	·u	P			Thru		P				
Riq	ht	Þ			Right		P				
Ped		x		Į	Peds		x				
WB Lef		P		SB	Left	P					
Thr		P		1 35	Thru	P	P				
Riq	_	P		ı	Right		P				
Ped		x		I	Peds	X	X				
NB Riq		21		EB	Right	Λ.	A				
SB Rig				WB	Right						
Green		25.0		1 4472	widile						
						160	20 0				
		25.0				16.0	39.0				
Yellow		4.0					4.0				
Yellow All Red		4.0				0.0					
Yellow All Red Cycle L	l ength: 90.	4.0 1.0 0 secs	ection Pe	erformanc	e Summa	0.0	4.0				
Yellow All Red		4.0 1.0 0 secs	ection Pe Rati		e Summa Lane (	0.0 ary	4.0	oach			
Yellow All Red Cycle L Appr/	ength: 90.	4.0 1.0 0 secs Interse	Rati	.os	e Summa Lane (	0.0 ary	4.0	oach		·· <del>-</del>	
Yellow All Red Cycle L Appr/ Lane	ength: 90.	4.0 1.0 0 secs Interse Adj Sat	Rati		e Summa Lane ( Delay	0.0 ary Group	4.0				
Yellow All Red Cycle L Appr/ Lane Grp	ength: 90. Lane Group Capacity	4.0 1.0 0 secs Interse Adj Sat Flow Rate	Rati	.os	Lane (	0.0 ary Group	4.0 1.0				
Yellow All Red Cycle L Appr/ Lane Grp	Lane Group Capacity	4.0 1.0 0 secs Interse Adj Sat Flow Rate (s)	Rati	.os 	Delay	0.0 ary Group LOS	Appr Delay	LOS			
Yellow All Red Cycle L Appr/ Lane Grp Eastbou LTR	Lane Group Capacity and	4.0 1.0 0 secs Interse Adj Sat Flow Rate	Rati	.os	Lane (	0.0 ary Group LOS	4.0 1.0	LOS		-	
Yellow All Red Cycle L Appr/ Lane Grp Eastbou LTR Westbou	Lane Group Capacity  nd  401	4.0 1.0 0 secs Interse Adj Sat Flow Rate (s)	Rati v/c 1.39	g/C g/C 0.278	Delay	0.0 ary_ Group LOS	Appr Delay	LOS			
Yellow All Red Cycle L Appr/ Lane Grp Eastbou LTR Westbou	Lane Group Capacity  nd  401  nd 80	4.0 1.0 0 secs Interse Adj Sat Flow Rate (g) 1445	Rati	0.278	Delay 223.4 426.8	0.0 ary 3roup LOS	Appr Delay	LOS			
Yellow All Red Cycle L Appr/ Lane Grp  Eastbou LTR Westbou L	Lane Group Capacity and 401 and 80 478	4.0 1.0 0 secs Interse Adj Sat Flow Rate (s) 1445	Rati v/c 1.39 1.77 0.44	g/C 0.278 0.278 0.278	Delay  223.4  426.8 29.7	G.O ary Group LOS F	Appr Delay	LOS			
Yellow All Red Cycle L Appr/ Lane Grp Eastbou LTR Westbou LT R	Lane Group Capacity and 401 and 80 478 402	4.0 1.0 0 secs Interse Adj Sat Flow Rate (g) 1445	Rati	0.278	Delay 223.4 426.8	0.0 ary 3roup LOS F	Appr Delay	LOS			
Yellow All Red Cycle L Appr/ Lane Grp Eastbou LTR Westbou LT R	Lane Group Capacity and 401 and 80 478 402	4.0 1.0 0 secs Interse Adj Sat Flow Rate (s) 1445	Rati v/c 1.39 1.77 0.44	g/C 0.278 0.278 0.278	Delay  223.4  426.8 29.7	G.O ary Group LOS F	Appr Delay	LOS			
Yellow All Red Cycle L Appr/ Lane Grp Eastbou LTR Westbou L T R Northbo	Lane Group Capacity and 401 and 80 478 402	4.0 1.0 0 secs Interse Adj Sat Flow Rate (s) 1445	Rati v/c 1.39 1.77 0.44	g/C 0.278 0.278 0.278	Delay  223.4  426.8 29.7	G.O ary Group LOS F	Appr Delay	LOS			
Yellow All Red Cycle L Appr/ Lane Grp Eastbou LTR Westbou L T R Northbo	Lane Group Capacity  nd 401  nd 80 478 402  nund 2497	4.0 1.0 0 secs_Interse Adj Sat Flow Rate (s) 1445 275 1722 1447	Ration 1.39  1.77 0.44 0.31	g/C 0.278 0.278 0.278 0.278	Delay  223.4  426.8 29.7 27.7	G.O ary Group LOS F	Appr Delay 223.4	F F			
Yellow All Red Cycle L Appr/ Lane Grp	Lane Group Capacity  nd 401  nd 80 478 402  nund 2497	4.0 1.0 0 secs_Interse Adj Sat Flow Rate (s) 1445 275 1722 1447	Ration 1.39  1.77 0.44 0.31	g/C 0.278 0.278 0.278 0.278	Delay  223.4  426.8 29.7 27.7	G.O ary Group LOS F	Appr Delay 223.4	F F			

| Westbound | Northbound

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C.

SIGNALIZED INTERSECTION SUMMARY
Eastbound | Westbound | Northbound

Analyst: LB

Proj #: JA-2249

Date: 8/23/00 E/W St: Porter St.

Period: 2017 Build AM Peak w Mitigatio

Southbound

N/S St: Connecticut Ave.

		Eas				stbou		1401	thbou		l So			
		L	Ţ	R	L	T	R	L	T	R	L	T	R	
•	_				!——			.			İ			_l
lo. Lar		0	1	0	1	1	1	0	2	0	0		0	
LGConf:			LTR		L	T	R		LTR			LTR		
Volume		7	363	57	140	272	270		657	90	270			- [
Lane W:			12.0		10.0	10.0	10.0	1	10.0			10.0		
RTOR V	ol			0	ŀ		0	1		0	<b>\</b>		O.	- 1
Duratio	on U	.25		Area			other							
Shace (	Combina	FIOR		- 2	— <sub>3</sub>	gnai ( 4	)perat	ions_	5	6	7		8	
EB Lei		CIOI.	P	2	J	4	NB	Left	2	P	,		0	
Thi			P				""	Thru		P				
	aht		P				1	Rìght		p				
Pec			X				1	Peds		x				
WB Lei			P				SB	Left:	2	^				
Th:			P				35	Thru	P P	P				
R19	ght		P X					Right		P X				
			^				-	Peds	X	٨				
NB Ric							EB	Right						
B Rig	gnt		26.0				WB	Right						
<b></b>									27.0		ა			
Yellow			4.0							4.0				
Yellow All Red	i	0.0	4.0 1.0						0.0	4.0 1.0				
Yellow All Red		90.	4.0 1.0 0	secs	ation	Do m.F.		a Cu		1.0				
Yellow All Red Cycle I	i Length:	90.	4.0 1.0 0	iterse	ction	Perf	rmanc	e Summ	ary	1.0	27034	<u>.</u>		
Yellow All Red Cycle I	i Length: Lane		4.0 1.0 0 In	terse Sat	Ra	Perfos	>rmanc		ary	1.0	proac	h		
Yellow All Rec Cycle I Appr/ Lane	i Length: Lane Group		4.0 1.0 0 In Adj	terse   Sat   Rate	Ra	itios		Lane	ary_ Group	1.0				
Yellow All Rec Cycle I Appr/ Lane	i Length: Lane		4.0 1.0 0 In Adj	terse   Sat   Rate	Ra	itios	ormanc Tē	Lane	ary_ Group	1.0				
Yellow All Rec Cycle I Appr/ Lane Grp	l Length: Lane Group Capac		4.0 1.0 0 In Adj	terse   Sat   Rate	Ra	itios		Lane	ary_ Group	1.0				
Yellow All Rec Cycle I Appr/ Lane Grp	l Length: Lane Group Capac		4.0 1.0 0 In Adj	terse   Sat   Rate	Ra	itios		Lane	ary_ Group	1.0				
Yellow All Rec Cycle I Appr/ Lane Grp	l Length: Lane Group Capac		4.0 1.0 0 In Adj	terse   Sat   Rate  s)	Ra	g		Lane Delay	ary Group LOS	1.0	ay LO	\$ 		
Yellow All Rec Cycle I Appr/ Lane Grp	Lane Lane Group Capac		4.0 1.0 0 In Adj	terse   Sat   Rate  s)	v/c	g	∕̄c	Lane Delay	ary Group LOS	1.0 App	ay LO	\$ 		
Yellow All Rec Cycle I Appr/ Lane Grp	Lane Group Capac		4.0 1.0 0 In Adj	terse   Sat   Rate  s)	v/c	g	∕̄c	Lane Delay	ary Group LOS	1.0 App	ay LO	\$ 		
Yellow All Rec Cycle I Appr/ Lane Grp Castbox	Lane Group Capac		4.0 1.0 0 In Adj	nterse   Sat   Rate  s)	v/c	g,	∕̄c	Lane Delay	ary_ Group LOS	1.0 App	ay LO	\$ 		
Yellow All Rec Cycle I Appr/ Lane Grp Bastbox	Lane Group Capac and 421		4.0 1.0 0 Ir Adj Flow	sat Sat Rate (s)	7/C	g,	7 <u>ē</u> ———	Delay	ary_ Group LOS F	1.0 App Dela	ay LO	<del>s</del>		
Yellow All Rec Cycle I Appr/ Lane Grp Eastbou LTR	Lane Group Capac and 421		4.0 1.0 0 Ir Adj Flow	sat Sat Rate (s)	1.24 2.50	g,	. 289 . 289 . 289	Delay 158.8 742.6	ary_ Group LOS F	1.0 App Dela	ay LO	<del>s</del>		
Yellow All Rec Cycle I Appr/ Jane Grp Zastbou TR	Lane Group Capac and 421 and 80 497 418		4.0 1.0 0 Ir Adj Flow (	sat Sat Rate (s)	7.24 2.50 0.63	g,	. 289	Delay 158.8 742.6 33.0	ary_ Group LOS F	1.0 App Dela	ay LO	<del>s</del>		
Yellow All Rec Cycle I Appr/ Lane Grp Bastbook LTR Westbook	Lane Group Capac and 421 and 80 497 418		4.0 1.0 0 Ir Adj Flow (	sat Sat Rate (s)	7.24 2.50 0.63	g,	. 289 . 289 . 289	Delay 158.8 742.6 33.0	ary_ Group LOS F	1.0 App Dela	ay LO	<del>s</del>		
Yellow All Rec Cycle I Appr/ Lane Grp Gastbook TR Westbook I	Lane Group Capac and 421 and 80 497 418		4.0 1.0 0 Ir Adj Flow (	terse Sat Rate (s)	7.24 2.50 0.63	g, 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	. 289 . 289 . 289	Delay 158.8 742.6 33.0	aryGroup LOS F	1.0 App Dela	.8 F	<u>s</u>		
Yellow All Received I Received I Received I Appr/ Jame Grp  Wastbook TR  Westbook I Received I Rece	Lane Group Capac and 421 and 80 497 418 bund 967		4.0 1.0 0 In Adj Flow ( 145 265 172	terse Sat Rate (s)	1.24 2.50 0.63 0.73	g, 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.289 .289 .289 .289	158.8 742.6 33.0 38.8	aryGroup LOS F	1.0 App Dela	.8 F	<u>s</u>		
Yellow All Rec Cycle I Appr/ Lane Grp Eastboo LTR Westboo I R R Northbo	Lane Group Capac and 421 and 80 497 418 bund 967		4.0 1.0 0 In Adj Flow ( 145 265 172	terse Sat Rate (s)	1.24 2.50 0.63 0.73	g, 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.289 .289 .289 .289	158.8 742.6 33.0 38.8	aryGroup LOS F	1.0 App Dela	.8 F	<u>s</u>		
Yellow All Rec Cycle I Appr/ Lane Grp Bastbou LTR Westbou Gr R Northbou LTR	Lane Group Capac and 421 and 80 497 418 bound 967	ity	4.0 1.0 0 Ir Adj Flow ( 145 265 172 144	eterse   Sat   Rate   Sat   Rate   Sat   S	1.24 2.50 0.63 0.72	9, 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.289 .289 .289 .289 .289	158.8 742.6 33.0 38.8	ECD	1.0 App Dela . 158 . 212 . 42.0	.8 F	5		
Green Yellow All Rec Cycle I Appr/ Lane Grp  Eastbox LTR Westbox L I R Northbox LTR Southbox	Lane Group Capac and 421 and 80 497 418 bund 967	ity	4.0 1.0 0 Ir Adj Flow ( 145 265 172 144	terse Sat Rate (s)	1.24 2.50 0.63 0.72	9, 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.289 .289 .289 .289	158.8 742.6 33.0 38.8	aryGroup LOS F	1.0 App Dela	.8 F	5		
Yellow All Rec Cycle I Appr/ Lane Grp Eastbou LTR Westbou LT R Northbo	Lane Group Capac and 421 and 80 497 418 bund 967 bund	ity	4.0 1.0 0 Ir Adj Flow ( 145 265 172 144 322	saterse Sat Rate s)	1.24 2.50 0.61 0.72 0.89	9, 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.289 .289 .289 .289 .289	158.8 742.6 33.0 38.8	ary_Group LOS F C D	1.0 Approximate Ap	.8 F	5		

### HCS: Unsignalized Intersections Release 3.1c TWO-WAY STOP CONTROL (TWSC) ANALYSIS\_ Analyst: 1b Intersection: Woodley Rd. & 32nd St. Count Date: Time Period: Existing AM Intersection Orientation: East-West Major St. Vehicle Volume Data: Vblume: HER. 4 118 0.25 0.60 1.00 0.53 0.50 1.00 PHF: 0.00 0.00 0.00 0.00 0.00 0.00 Pedestrian Volume Data: Movements: ------Flow: Lane width: Walk speed: 1 Blockage Median Type: None # of vehicles: 0 Flared approach Movements: # of vehicles: Northbound # of vehicles: Southbound fane usage for movements 1,2%] approach: Lane 1 Lane 2 L T R L T R L -----n y y n n n n N Channelized: 0.00 Grade: Lane usage for movements 4,546 approach: Lune 1 Lane 2 Lane 3 L T R L T R L T R Y Y Channelized: 0.00 Grade: Lane usage for movements 7,849 approach: | Lane 1 | Lane 2 | Lane 3 | L T R L T R L T R

N N N N N

Channelized:

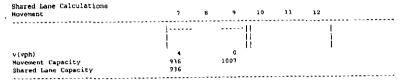
Grade:

0.00

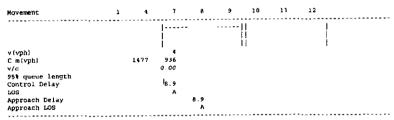
ane usage f	or moveme Lane 1	nts 10,1	ILE12 ap	proach: Lane '	,		Lane 3	
L	Lane 1 T	R	L	T	R		T	R
							N	
и		14	.,		N	••	.,	•
hannelized:	N							
rade:	Ç.00							
ata for Con			Do Law I	o Maior	Ctreat	Vahicle		
aca tot con	paring E							
					Ear	etbound		Westbound 5
hared in vo						0		ō
hared in vo	e maior	th vehi	cles:		1	700		1700
at flow rat	e, major	rt vehi	cles:		1	700 700		1700
lumber of ma				5:		1		1
Length of s	tudy peri	od, hrs:	0	25				
	•••••							
forksheet 4	Critica	1 Gap an	d Follo	w-up tim	ne calcu	lation.		
Critical Gap	o Calcula	rions:						
Novement	4	7	9					
c,base		7.1						
c,hv		0.00						
hv c,g	0.00		0.1					
G C.G	0.00	0.00						
3.1t	0 0	0.7	0.0					
t. c,Tı								
l stage	0.00	0.00	0.00					
t c								
l stage	4.1	6.4	6 2					
Follow Up T	ime Calcu	lations:						
Movement	4	7	9					
t f,base	2.2	3.5	3.3					
t f,HV Phv	0.9	0.9						
t f		3.5						
					_			
Worksheet 6	Tubedanc	e and ca	pacicy	equactor	18			
Step 1: RT	from Mino	r St.						
Conflicting						63		
Potential C						107		
Pedestrian					1.			
Movement Ca					10	107		
Probability					1.			
	from Majo	or St.				4		1
Step 2: LT								
					1	22		
Conflicting	Flows					77		
Conflicting Potential C	Flows apacity	Pactu			14			
Conflicting Potential C Pedestrian	Flows apacity Impedance	Pactur			1.	00		
Step 2: LT Conflicting Potential C Pedestrian Movement Cap Probability	Flows apacity Impedance pacity					00		

Step 4: LT from Minor St	7	10	
***************************************			
Conflicting Flows	73		
Potential Capacity	936		
Pedestrian Impedance Factor	1.00		
Maj. L. Min T Impedance factor	1.00		
Maj. L. Min T Adj. Imp Factor.	1.00		
Cap. Adj. factor due to Impeding mymnt	1.00		
Movement Capacity	936		

#### Worksheet 8 Shared Lane Calculations



#### Worksheet 10 delay, queue length, and LOS



#### Worksheet 11 Shared Hajor LT Impedance and Delay

Movement	2	5	
P o1	1.00	1.00	
V 11	2.00	5	
V 12	ō	٥	
Sil	1700	1700	
S 12	1700	1700	
P* 0j	1.00	1.00	
D maj left	0.0	0.0	
N number major at lanes	1	1	
Delay, rank 1 mymts	0.0	0.0	

		IWO-WAY	STOP COM	TROL (	IWSC) A	ALYSIS		
Analyst: 1b							-	
Intersection:	¥cod1;	y Rd. I	32nd St	:.				
Count Date:								
Time Period:	EX18C1	19 FM						
Intersection	Orienta	tion: I	last-West	Major	St.			
Vehicle Volum	e Data:							
Movements:	2			5				
Volume:		35		5	2	0		***************************************
HFR:	25	35 58	u	,	•	U		
			1.00					
PHV;	0.00	0.00	0.00	0.00	0.00	0.00		
Pedestrian Vo	lume Da	ata;						
Movements:								
Flow: Lane width: Walk speed: Walk speed:		• • • • • • • • • • • • • • • • • • • •						
dedian Type: F of vehicles		•						
Flared approa	ch Move	ements:						
•								
of vehicles of vehicles								
Lane usage fo			263 appi					
r	Lane T		2		ne 2 R	ı	Lane 3 T	9
<b></b>							<b></b>	
14	Y	¥	N	N	N	N	N	N
Channelized: Grade:								
Lane usage fo								
L	Lane	l R		Lat		ь	Lane 3 T	
ь 								R
Y	Y					B		N
Channelized: Grade:	14 0.00							
	3.00							
Lane usage fo	I nove	ments 7	869 appi				lans 3	
L	r novem Lane T	ments 7. 1 R	L	Lai T	ne 2 R	L		R
Lane usage fo	r novem Lane T	ments 7. 1 R	L	Lai T	ne 2		т	R

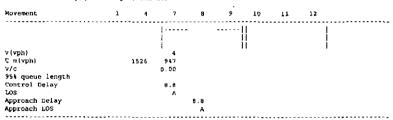
ane usage fo	Lane 1			Lane	2		Lane	3	
L	т	R	L	T	ĸ	L	Lane T	R	
······	n					N	·		
.,	.,	18		tı.				14	
nannelizedi	N								
rade:	0.00								
ata for Com	nuting Ki	fect of	Helay I	n Major	Street	Vehiclei	<b>.</b> .		
						tbound		West bound	
hared in vo	lume, maj	jor th v	ehicles	:		0		5	
hared ln vo	lume, maj	jor rt v	chicles			0		0	
at flow rat						700 700		1700 1700	
at flow rati umber of ma						1		1700	
unber of ma	lor atte	ec throu	gn ranci	<b>s</b> :		-		•	
ength of st	udy perio	od, hre:	o.	25					
		•							
orkeheet 4	Critical	l Gap an	d Follo	e-up tim	me calcul	lation.			
	C + 3 1								
ritical Gap Ovement	Carcura.	1 10115	9						
			<b>.</b>						
c,base	4.1	7.1 1.0 0.00	6.2						
c, hv	1.0	1.0	1.0						
hv	0.00	0.00	0.00						
c,g		0.3	Α -						
	0.00	0.00	0.00						
3,1t		0.7							
c.T:									
1 stage	0.00	0.00	0.00						
:c 1 stage	4 1	6.4	6 2						
Lacugo	• • •	٠.٠	0.2						
ollow Up Ti	me Calcui	lations:							
ovement									
f,base f,HV hv	2.2	3.5	3.3						
: €,HV	0.9	0.9	0.9						
? hv	0.00	0.00	0.00						
: f	2.2	3.5	3.3						
orksheet 6	1mpedance	e and ca	pacity	equation	15				
Step 1: RT f				<b></b>		9		12	
Conflicting									
otential Ca					10				
edestrian I					1.0				
ovement Cap					10:	9			
robability	of Queue				1.0	00			
a		^-						,	
Step 2: LT f	rom Major	r St.		<b></b>		4		1	
				•		83			
					153				
onflicting									
onflicting Otential Ca		Factor							
Conflicting Potential Ca Pedestrian I	pedance	Factor			1.0				
Conflicting Objective Capes	mpedance acity				15	26			
onflicting otential Ca edestrian I	mpedance acity of Queue	Iree St		Sr.		26			

Step 4: LT from Minor St.	7	10	
Conflicting Flows	64		
Potential Capacity	947		
Pedestrian Impedance Factor	1.00		
Maj. L. Min T Impedance factor	1.00		
Maj, L, Min T Adj. Imp Factor.	1.00		
Cap. Adj. factor due to Impeding mymmut	1.00		
Movement Capacity	947		
***************************************			

#### Worksheet 8 Shared Lane Calculations

Shared Lane Calculations Movement	7	8 9		11	12	
					Į	
	i		li		i	
v (vph)	4	0				
Movement Capacity	947	1019				
Shared Lane Capacity	947					

#### Worksheet 10 delay, queue length, and LOS



#### Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations			
Novement	2	5	
₽ oj	1.00	1.00	
V il	0	5	
V i2	U	Ü	
\$ 11	1700	1700	
\$ i2	1700	1700	
₽• oj	1 00	1.00	
D maj left	0.0	0.0	
N number major at lance	1	1	
Delay, rank 1 mvmts	0.0	0.0	

### HCS: Unsignalized Intersections Release 3.1c

		EMO-MAY	STOP CON	TROL   TY	ISC) AN	ALYSIS			
Analyst: lb Intersection:	Woodle	ey Rd. &	32nd St						
Count Date: Time Period:	Vo Poil	la su							
line Periou:	NO BULL	tu am							
Intersection	Orienta	stion: E	ast-West	Major	St.				•
Vehicle Volum	ne Data:	:							
Movements:									<b>*****</b>
Volume:	1	84	0	5	2	0			
HFR:	4	140	0	9	4	0			
PHF:	0.25	0.60	1.00	0.53	0.50	1.00			
PHP: PHV:	0.00	0.00	0.00	0.00	0.00	0.00			
Flow: Lane width: Malk speed: % Blockage: Median Type: # of vehicles Flared approx % of vehicles # of vehicles	None a: 0 ach Move a: North a: South	ements: nbound nbound	0						
Lane usage fo		ments 1, 1 R		Lane	2 R			Lane 3	
N	· · · · · · · · · · · · · · · · · · ·							·	й к
Channelized: Grade:				.,		•	•		a .
arade:	0.00								
Lane usage fo	ı moven	ments 4.	566 apor	oach.					
	Lane	1	arbht	lane	2			Cane 3	
ъ	T	R	t.	т	. R		L.	r	R
Y	Υ	N	N		 И			N	
			-	-				••	и
Channelized:									
Grade:	0.00								
Lane usage fo	r moven	ents 7,	869 appr	oach:					
	Lane	1		Lane	2			Lane 3	
L	T	R	I,	T	R		ւ	τ	R
	N		N N					N	N
Channelızed: Grade:	0.00								

Lane	usage	tor	WOALING R	10.11612	approach:
			Laure 1		

	Lane 1		Lane 2		Lane 3	
			T	L	T	R
			N			N

Channelized: N Grade: 0.00

### Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared in volume, major th vehicles:	0	5
Shared in volume, major rt vehicles:	Ð	٥
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street chrough lanes:	1	1

Length of study period, hrs: 0.25

#### Worksheet 4 Critical Gap and Follow-up time calculation.

Critical	Can	Calculations:

4	7	9	
4.1	7.1	6.2	
1.0	1.0	1.0	
0.00	9.00	0.00	
	2.2	0.1	
0.00	0.00	0.00	
0.0	0.7	0.0	
			•
0.00	0.00	0.00	
4.1	6.4	6.2	
	4.1 1.0 0.00 0.00 0.00	4.1 7.1 1.0 1.0 0.00 9.00 9.2 0.00 0.00 0 0 0.7 0.00 0.00	4.1 7.1 6.2 1.0 1.0 1.0 0.00 9.00 0.00 0.00 0.00 0.00 0.00 0.00

4.1	0.4	6.2	
ne Calcul	ations:		
4	7	9	
		<b></b>	
2.2	3.5	3.3	
0.9	0.9	0.9	
0.00	0.00	0.00	
2.2	3.5	3.3	
	2.2 0.9	2.2 3.5 0.9 0.9 0.00 0.00	2.2 3.5 3.3 0.9 0.9 0.9 0.00 0.00 0.00

#### Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12	
Conflicting Flows	74		
Potential Capacity	993		
Pedestrian Impedance Factor	1.00		
Movement Capacity	993		
Probability of Queue free St.	1.00		
***************************************			

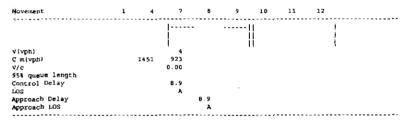
Step 2: LT from Major St.	4	1	
Conflicting Flows	144		
Potential Capacity	1451		
Pedestrian Impedance Factor	1.00		
Movement Capacity	1451		
Probability of Queue tree St.	1.00		
Maria I Describe to the Comment of t			

Step 4: LT from Minor St.	,	10	
Conflicting Flows	83		
Potential Capacity	923		
Pedestrian Impedance Factor	1.00		
Maj. L. Min T Impedance factor	1.00		
Maj. L. Min T Adj. Imp Factor.	1.00		
Cap. Adj. factor due to Impeding mymnt	1.00		
Movement Capacity	923		

#### Worksheet 8 Shared Lane Calculations

Shared Lane Calculations Novement	7		9 1	0 11	12	
,			    			 
ý (vph)	4		0			
Movement Capacity	923	9	93			
Shared Lane Capacity	923					

#### Worksheet 10 delay, queue length, and LOS



0.0 0.0

### Worksheet 11 Shared Major LT Impedance and Delay

#### Rank 1 Delay Calculations 2 5 Movement 1.00 1.00 V 11 0 V 12 Sil 1700 1700 1700 1700 S 12 1.00 1.00 pi∗ 0j D maj left 0.0 0.0 N number major at lames 1

Delay, rank 1 mymts

		NO-WAY S	STOP CON	TROL (TW	SC) A	PISTAN		
Analyst: 1b								
Intersection:	Woodley	Rd. &	32nd St					
Count Date:								
Time Period: I	No Build	Mg E						
Intersection (	Prientat	ion: Ea	lst - West	Major	St .			
Vehicle Volume	Data:							
Movements:	2	3	4	5	7			
Volume:	18	41	0	5	2	0		
HFR:	30	68	ō	9	•			
			1.00	0.53				
PHV:	0.00	0.00	0.00	0.00	0.00	0.00		
	· • • • • • • • • • • • • • • • • • • •							
Pedestrian Vo	lume Dat	a:						
Movements:		<b></b> .	<b></b> -	,				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Flow:								
Lane width: Walk speed: % Blockage:								
Median Type:	None							
# of vehicles:								
Placed approac	th Movem	nents:						
# of vehicles # of vehicles	North South	ound	0					
Lane usage for	Lone 1				-			
T.		R	L	Tane	٠,	L	Lane 3 T	
								R
N	Y	Y	N	N	N	N	N	и
Channelized: Grade:	N 0.00							
Lane usage for			≨6 appr	oach:				
	Lane 1			Lane			Lane 3	
L	T	R	L	T	R	r	r	
	Y			N	н	И	М	N
Channelized: Grade:	N 0.00							
O# Wale .	0.00							
Lane usage for			69 appr		_			
L	Lane 1 T	R	L	Lane T		tı	Lane 3 T	
у	N				· · · · · ·		и	
Channelized:	N		•			-		-
Grade:	0.00							

L	Lane 1 T	R	L	Lane 2 T	R	L	Lane 3 T	R	
	N	N	N	N	N	N	N	N	
hannelized: rade:	N 0.00								
Data for Comp	uting Et	tect of	Delay to	Major S	treet V	ehicles	; 	<b>-</b>	
hared In vol	ume. mai	or th v	ehicles:		East	bound		Westbound	
Shared ln vol	ume, maj	or rt v	chicles:					5 0	
Sat flow rate Sat flow rate	, major	th vehi	cles:		170	0		1700 17 <b>00</b>	
Number of maj	, major or stree	t throu	Cles: gh lanes:		170	0 1		1700 1	
Length of atm	dy perio	d, hrei	0.29	;					
			<b></b>			<b>-</b>			
Norksheer 4	Critical	Gap an	d Follow-	up time	calcula	tion.			
ritical Cap				•					
dovement	4	7							
c,base c,hv	1.0	1.0	1.0						
hv	0.00	0.00	0.00						
c,g	0.00	0.2							
3.1t		0.00							
C.T:									
1 stage	0.00	0.00	0.00						
: c 1 stage	4.1	6.4	6.2						
_									
Follow Up Time Hovement	e Calcul	ations							
f,base f,HV hv	2.2	3.5	3.3						
£,HV	0.9	0.9	0.9						
t t	2.2	3.5	3.3						
						•			
orksheet 6 In			ecity eq	uations					
tep 1: RT fro					9	<b></b>	12	· · · · · · · · · · · · · · · · · · ·	
	lows				64				
ontlicting fl					1006				
Conflicting Fl Cotential Capa		P4			1.00				
Conflicting Fl Otential Capa Medestrian Imp	pedance	Factor			1000				
Conflicting Fl Cotential Capa Cedestrian Imp Covement Capac Crobability of	pedance   ity   Queue	free St.			1.00				
Conflicting Floctential Caps edestrian Impovement Capac robability of	pedance   city   Queue   	free St.			1.00			. <del> </del>	<b></b>
onflicting Flotential Capa edestrian Impovement Capac robability of	pedance   rity f Queue   Dm Major	free St.			1.00		]	· · · · · · · · · · · · · · · · · · ·	
ontlicting F) otential Cape edestrian Imp ovement Capac robability of tep 2: LT fro-	pedance   rity f Queue   Dm Major	free St.			1.00			· · · · · · · · · · · · · · · · · · ·	
onflicting Fl otential Capa edestrian Imp ovement Capa robability of tep 2: LT fro onflicting Fl otential Capa	pedance   rity   Queue   	free St.			1.00		1	1	
Conflicting Floctential Caps edestrian Impovement Capac robability of	pedance   rity   Queue     Down Major   Lows   acity   Dodance	St.			1.00 4 98 1507				

Step 4: LT from Minor St.	7	10	
Conflicting Flows	74		
Potential Capacity	935		
Pedestrian Impedance Factor	1.90		
Maj. L. Min T Impedance factor	1.30		
Maj. L. Min T Adj. Imp Pactor.	1.30		
Cap. Adj. factor due to Impeding mymnt	1.00		
Movement Capacity	935		

#### Worksheet 8 Shared Lane Calculations

Shared Lane Calculations Movement	7	8		10	11	12	
•	l .		_ i	i			į
v (vph)	4		C				
Movement Capacity	935	10	06				
Shared Lane Capacity	935						

#### Worksheet 10 delay, queue length, and LOS

Movement	1	4	7	8	9	10	11	12	
*		•	1					,	
			1		!	!		;	
v (vph)			4		,	ļ		r	
C m(vph)	1	507	935						
v/c			0.00						
95% queue length									
Control Delay			8.9						
LOS			A						
Approach Delay				0.9					
Approach LOS				A					

#### Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations Movement	2	\$	
P oj	1.00	1.00	
V 11	0	5	
V 12	C	0	
Sil	1700	1700	
S 12	2700	1700	
P* 01	2.00	1.00	
D maj left	0.0	0.0	
N number major at lanes	1	1	
Delay, rank 1 mymts	0.0	0.0	

#### HCS: Unsignalized Intersections Release 3.1c

		WO-WAY	STOP COL	TROL (TWS	C) ANAL	YSIS			
Analyst: 1b			\						
Intersection Count Date:	. woodle	у ка	32nd St						
Fime Period.	Build s	L AM							
Intersection	Orienta	tion: E	last-West	: Major S	St.				
enicle Volu	me Data:								
Movements:				S					
Volume:	137			263		0			
HFR:	171	140	ő	329	4 :				
PHF:				0.80					
PHV:	0.00	0.00	0.00	0.00 0	).ga 0	.00			
Pedestrian V	ólume Da	ta:							
wavements:									
Plow:									
Lane width:									
Walk speed:									
* Blockage:					•				
Median Type: ∰ of vehicle									
Placed appro	ach Move	ments:		1					
of vehicle			0						
of vehicle									
Gane usage f	or movem Lane		263 app	roach: Lane	2		Tane 3		
L	T	R	T,	T	R	L	r	R	
N	Y	Y	И	N	N	N		N	
Channelized:	37								
drade:	0.00								
4.4									
Lane usage f			5&6 app:						
	Lane			Lane			Lane 3	_	
L	T	R	L ·	т	R	L	T	R	<b>_</b>
Y		N	N	ы	N	И	H	N	
Channelized:									
Grade:	0.00								
Lane usage f	or moves	ents 7.	9 app	roach:					
	Lane			Lane		_	Lane 3	_	
L	т	R	L	T	К	L	T	R	
Y	И	Y	N		N	N	N	Ŋ	
Channelized:				-					

		r moveme: Lane l	10,	***** up	Lane 2			Lane	3	
	L.	т 	R	L	т	R	L	т	R	
	N	N	N	N	N	N	N	N,	N	
Channe	lized:	N								
Grade:		0.00								
Data fo	or Comb	uting Ef	fect of	Delay t	o Major S	treet	Vehicles	:		
							tbound		Westbound	
		ште, тај					0		263	
Shared	11 AO1	ume, maj	or rt vi	ehicles:			0			
Sat flo	ow rate	, major , major	rt vehi	cles:		17 17	no.		1700 1700	
		or stree					1		1	
Length	of stu	dy perio	d. hrs:	0.2	25					
Worksh	eet 4	Critical	Сар апо	d Follow	-up time	calcul	ation.			
					•					
		Calculat . 4		9						
				• • • • •						
	80	4.1	7.1	6.2						
t c,h <sup>,</sup> Phv	٧	1.0	1.0	1.0						
t c,g			0.2	0.1						
G C.S		0.00	0.2	0.00						
ε 3,1¢	t.	0.3	0.00	0.00						
L c.T		*	٠.,	0.0						
1 stag	ge	0.00	0.00	0.00						
tc										
lstag	je	4.1	6.4	6.2						
Follow	Up Tim	e Calcula	ations.							
							<b></b>			
t É.ba	ise	2.2	3.5	3.3						
	,	0.9	0.9	0.9						
t £,HN				0.00						
P bv		0 00	0.00							
P bv t f			3.5	3.3						
Phv t f		0 00 2.2	3.5	3.3	·· ·····					
P hv t f		2.2	3.5	3.3	quations		· · · · · · · · ·			
P hv t f Workshe	eet 6 Ir	2.2 mpedance	3.5 and car	3.3	quations		· · · · · · · · · · · · · · · · · · ·			*
P hv t f Workshe	eet 6 Ir	2.2 mpedance	3.5 and cap	J.3 Dacity e			· · · · · · · · · · · · · · · · · · ·		12	
P by t f  Workshe Step 1: Conflic	et 6 In	2.2 mpedance om Minor	3.5 and cap	J.3 Dacity e		24		<b></b>	12	
P by t f  Workshe Step 1: Conflic	et 6 in RT fro	2.2 mpedance om Minor lows	3.5 and cap	J.3 Dacity e		24 i 80 i			12	
P by t f  Workshe Step 1: Conflic Potenti Pedestr	et 6 in RT fro ting Fi ial Capa	gedance om Minor Lows acity pedance i	3.5 and cap	J.3 Dacity e		24; 80; 1.00			12	
P by t f  Workshe Step 1: Conflic Potenti Pedestr Movemen	et 6 In RT fro eting Fl ial Capac	mpedance om Minor lows acity oedance E	3.5 and cap St. Factor	J.3 Dacity e		241 801 1.00			12	
P by t f  Workshe Step 1: Conflic Potenti Pedestr Movemen Probabi	eet 6 In RT fro cting F; ial Capac rian Imp	mpedance om Minor lows acity pedance E	3.5 and cap St. Factor Free St.	J.3 Dacity e		241 801 1.00 801	) ) )			
P hv t f  Workshe Step 1: Conflic Potenti Movemen Probabi	RT from the RT fro	mpedance om Minor lows acity pedance E sity E Queue 1	3.5 and cap St. Factor	J.3 Dacity e		24; 86; 1.00 80; 1.00	) ) )			
P hv t f  Workshe Step 1: Conflic Potenti Pedestr Movemen Probabi	eet 6 In  RT fro  ting F;  al Capacian Impact Capaci	mpedance om Minor lows acity pedance in the control of the control	3.5 and cap St. Factor Free St.	J.3		24: 86: 1.00 80: 1.00	) ) )		1	
P hv t f  Workshe Step 1: Conflic Potenti Pedestr Movemen Probabi	et 6 In  RT fro  ting F;  al Capa  tian Imp  t Capa  lity of	mpedance om Minor lows acity oedance i	3.5 and cap St. Factor Free St.	J.3		24) 80: 1.00 80: 1.00	) ) )			
P hv t f  Workshe Step 1: Conflic Potenti Pedestr Movemen Probabi Step 2: Conflic	RT from RT from RT from RT from Imput Capacility of LT from RT	mpedance om Minor lows acity pedance filty f Queue i	3.5 and cap St. Factor free St.	J.3		24) 80: 1.00 80: 1.00	) ) )		1	
P hv t f  Workshe Step 1: Conflic Potenti Pedestr Movemen Probabi Step 2: Conflic	RT from RT from RT from RT from Imput Capacility of LT from RT	mpedance om Minor lows acity pedance filty f Queue i	3.5 and cap St. Factor free St.	J.3		24; 86; 1.00 80; 1.00	) ) ) )		1	
P hv t f  Workshe Step 1: Conflic Potenti Pedestr Movemen Probabi  Step 2: Conflic Potenti Potenti	RT from RT from RT from RT from RT from Imput Capacility of LT from RT	mpedance om Minor Lows acity pedance filty f Queue f com Major Lows acity pedance F city	3.5 and cap St. Factor Free St. St.	3.3 Dacity e	•••••	24) 80: 1.00 80: 1.00	;		1	
P hv t f  Workshe Step 1: Conflic Potenti Movemen Probabi Step 2: Conflic Potenti Pedestr dovemen Probabi	eet 6 In  RT fro  ting Fi  tal Capacian Im  tt Capaci  LT fro  ting Fi  al Capacian Im  tt Cap	mpedance om Minor lows acity oedance fi city f Queue f com Major lows ccity oedance F ccity cdance F ccity cdance F cuty	and cap St. Factor Free St. Factor Factor	J.3	•••••	241 80 1.00 903 1.00 4 311 1261 1261 1261 1.00	3		1	

	it.			7 •••		10	<b>-</b>	· · · · · · · · · · · · · · · · · · ·
Conflicting Flows			571	0				
Potential Capacity			48	Б				
Pedestrian Impedance Fo	octor		1.0	0				
Maj. L. Min T Impedance	factor		1.0	D				
Maj. L. Min T Adj. Imp	Factor.		1.0	כ				
Cap. Adj. factor due to	impeding mym	nt	1.0					
Movement Capacity	_		481					
	••••			• • • • • • •				
Worksheet 8 Shared Lane	: Calculations							
Shared Lane Calculation	1.5							
Movement		7	6	9	10	11	12	
			-		1			·
		ļ		į	1			
v (vph)		۱ •		<sub>0</sub> 1	I			1
Movement Capacity		486		803				
Shared Lane Capacity		186		803				
				<b></b>	<b></b>			
Worksheet 1D delay,queu Movement	e length, and 1 4		8	9	10	11	12	
					1			1
		i			] 			
and and A		į			] 			
v (vph)		1			] 			
C m(vph)	1261	4 4 486			] 			
Cm(vph) v/c		1			] 			
C m(vph) v/c 95% queue length		4 486 0.01			] 			<b>B</b>  -
C m(vph) v/c 95% queue length Control Delay		4 486 0.01			] 			}  -  -
C m(vph) v/c 95% queue length Control Delay LOS		4 486 0.01			] 			<u> </u>
C m(vph) v/c 95% queue length Control Delay LOS Approach Delay		4 486 0.01	12.5		] 			
C m(vph) v/c 95% queue length Control Delay		4 486 0.01			] 			}  -  -
C m(vph) v/c 95% queue length Control Delay LOS Approach Delay		4 486 0.01	12.5		] 			
C m(vph) v/c 591 queue length Control Delay LOS Approach Delay Approach LOS	••••	4 486 0.01 12.5 B	12.5 B		] 			} 
C m(vph) v/c 55% queue length Control Delay LOS Approach Delay Approach LOS  Norksheet 11 Shared Ma Rank 1 Delay Calculatio	jor LT Impedan	4 486 0.01 12.5 B	12.5 B		] 			} 
C m(vph) v/c queue length Control Delay LOS Approach Delay Approach LOS  Morksheet 11 Shared Ma Rank 1 Delay Calculatio	jor LT Impedan	4 486 0.01 12.5 B	12.5 B		] 			
C m(vph) V/c	jor LT Impedan	4 486 0.01 12.5 8	12.5 B		] 			
C m(vph) v/(vph) v/(vp	jor LT Impedan	4 486 0.01 12.5 B	12.5 B Delay 5		] 			
C m(vph) V/c 351 queue length Control Delay LOS Approach Delay Approach LOS Morksheet 11 Shared Ma Rank 1 Delay Calculatio Movement P oj v ii	jor LT Impedan	4 486 0.01 12.5 B	12.5 B Delay 5 1.00 263		] 			
C m(vph) V/c 351 queue length Control Delay LOS Approach Delay Approach LOS Morksheet 11 Shared Ma Rank 1 Delay Calculatio Movement P oj v ii	jor LT Impedan	4 486 0.01 12.5 B	12.5 B Delay		] 		•••••	
C m(vph) v/(vph) v/(vp	jor LT Impedan	4 486 0.01 12.5 B	12.5 B Delay 5 1.00 263		] 			
C m(vph) v/c y/c y/c y/c y/c y/c y/c y/c y/c y/c y	jor LT Impedan	4 486 0.01 12.5 g	12.5 B Delay 5 1.00 263 0 1700		] 			
C m(vph) V/c 554 queue length Control Delay LOS Approach Delay Approach LOS  Morksheet 11 Shared Ma Rank 1 Delay Calculatio Movement P of V ii V ii S iii	jor LT Impedan	4 486 0.01 12.5 8 ace and 1 2 2 1.00 0 0 1700 1700 1.00	12.5 B Delay 5 1.00 263 0 1700 1.00		] 			
C m(vph) V/c 351 queue length Control Delay LOS Approach Delay Approach LOS  Morkoheet 11 Shared Ma Rank 1 Delay Calculatio Movement P oj v ii V ii S ii S ii P oj	jor LT Impedan	4 486 0.01 12.5 8 ace and 1 2 2 1.00 0 0 1700 1700 1.00	12.5 B 1.00 263 0 1700 1.00		] 			

		uneigne : YAW-OW						· 	
Analyst: 1b Intersection: Count Date:	Woodle	y Rd. δ	32nd St	i.					
Time Period:	Build #	11. PM							
Intersection	Orienta	ition: E	ast-West	Major	St.				
Vehicle Volum	e Data:								
Movements			4	5	7	9			
Volume:	302		0	190	2				
HFR:	355	60	ō	238	4				
		0.60		u.ac					
PHV:		0.00							••••••
Pedestrian Vo	olume Da	ıCa:							
Hovements:									
Flow: Lane width: Walk speed:	· · · · · · · · ·						•••••		••••
■ Blockage:									
Median Type: # of vehicles									
Flared approa	ch Move	ments:							
# of vehicles			0						
Lane usage fo	r moves		243 app.		e 2			Lane 3	
L		R	L		5		L	T	R
N	γ	Y	N	N	Ň.		N	Ŋ	N
Channelized: Grade:									
Lane usage fo	r moven Lane		5&6 app:	roach: Lan	ני			Lane 3	
L	Ť	- 2	ե	T	·		ւ	T	
Υ	Υ	N		N N			y.	N	N
Channelised: Grade:	N 0.00								
Lane usage fo	or movem Lang			Lan	e 2			Lane 3	
L	T	ĸ	L	T	F	ł	L	τ	R
Υ	N	Y	N				N	N N	N
Channeli≠ed: Grade:	N U. UO								

Lane usage fo	Lane 1	mts 10,	13612 A) L	fane 2	R	L	Lane . T	R	
 N				N			• • • • • • • •		
hannelized:									
Frade:	0.00								
data for Comp	uting El	fect of	Delay:	to Major	Street	Vehicles	3: 		
,					Eas	tbound		Westbound	
Shared in vol						0		190	
thared in vol				•		0		0 1700	
Sat flow rate Sat flow rate					17	00		1700	
sat flow falls Number of maj						1		1,05	
ideser or mar	Or acree	ic chiqu	3.1 1411E			٠.		-	
Length of st	dy perio	od, hrs:	٥.	25					
								<b></b>	
Worksheet 4	Critical	l Gan an	d Folla	w-up time	calcul	ation.			
Critical Gap		-							
Movement	4	7	9						
c.base c.hv	4.1	7.1	1.0						
hv.		0.00							
. 6,9	0.00	0.2							
	0.00	6.00							
3,1t	0.0	0.7	0.0						
д,Т: 1 stage	0.00	0.00	0.00						
	0.50	2.00	0.00						
i.c 1 stage	4.1	6.4	6.2						
Follow Up Tir	ne Caliani	lationa							
Movement									
		<del></del>							. <b></b>
t, f,base t f,HV	2.2	3.5	3.3						
c £,HV	0.9	0.9	0.9						
Phy		0.00							
t, <b>f</b> 		3.5							
Worksheet 6 1	(mpedance	e and ca	pacity	equations					
Step 1: RT (:	on Mino	r St.				9		12	
Conflicting E			••		31		••		
Potential Car					61				
Pedestrian In		Factor			1.6				
Movement Capa					61				
Probability of	f Queue	free St			L.(	0			
	com Majo	r St.	<b></b> -			4		1 	
Step 2: LT ti					41	24 .			
	lows								
Conflicting &	acity				11				
Conflicting E Pptential Cap Pedectrian In	pacity mpedance	Factor			1.0	00			
Conflicting & Pptential Cap Pedestrian In Movement Capa	medance cuty				1.0	) o 16			
Step 2: LT in Conflicting & Pptential Cap Predestrian In Movement Capa Propability of Maj. L Shared	pacity npedance scity of Queue	free St		e,	1.0	10 76 00			

Step 4: LT from Minor St.		7			10		
Conflicting Flows		627			<b></b>		
Potential Capacity		451					
Pedestrian Impedance Factor		1.00				•	
Maj. L. Min T Impedance factor		1.00					
Maj. L. Min T Adj. Imp Pactor.		1.00					
Cap. Adj. factor due to Impeding mymm	+	1.00					
Movement Capacity		451					
***************************************							
Marketon A Bhould a Garage							
Worksheet 8 Shared Lane Calculations							
Shared Lame Calculations Movement	7	8	9	10	11	12	
***************************************							
	1			<b>! !</b>		1	
	Į.			!!			
	1		_	П		1	
v(vph)	4		0				
Movement Capacity Shared Lane Capacity	451		653				
onated bane capacity	451						
Worksheet 10 delay, queue length, and	ros						
Movement 1 4	7	8	9	10	11	12	
***************************************							
				]			
v (vph)	4						
C m(vph) 1146							
v/c	0.01						
95% queue length							
Control Delay	J <sub>13.1</sub>						
LOS	В						
Approach Delay		13.1					
Approach LOS		B					
Worksheet 11 Shared Major LT Impedan	ce and D	elay					
Rank 1 Delay Calculations		•					
Movement	2	5					
***************************************							
Poj	1.00						
V il	0	190					
V i2	0	O					
\$ i1		1700					
5 i2	1700	1700					
P* 05	1.00	1 00					
D maj left		0.0					
N number major st lanes	1						
Delay, rank 1 mymts	0.0	0.0					
***************************************		•		· • • • • • • • • • • • • • • • • • • •			

HCS: Unsignalized intersections Release 3.1c \_\_\_TWO-WAY STOP CONTROL (TWSC) ANALYSIS\_ Analyst: 1b Intersection: Woodley Rd. & 32nd St. Count Date: Time Period: Build s2 AM Intersection Orientation: East-West Major St. Vehicle Volume Data: Movements: 2 3 4 5 7 9 \_\_\_\_\_\_ Volume: 205 84 0 351 2 0 256 140 0 413 HFR: 0 0.80 0.60 1.00 0.85 0.50 1.00 PRV: 0.00 0.00 0.00 0.00 0.00 0.00 Pedestrian Volume Data: Movements: •-----Flow: Lane width: Walk speed: t Blockage: Median Type: None s of vehicles: D Flared approach Movements: # of vehicles: Northbound # of vehicles: Southbound Lane usage for movements 1,263 approach: Lane 1 T R L N Y Channelized: Grade: Lane usage for movements 4,546 approach: ------Y Y N N N N N N Channelized: N Grade: 0.00 Lane usage for movements 7,849 approach: Lane 1 Lane 2 Lane 3
T R L T R L T R L Y у и р Channelized: 0.00 Grade:

	Lane 1			Lane	2		Lane 1	
	Lane i T	R	L	T	R	L	т	
н		N				ม	Ŋ	N
hannelized: rade:	0.00							
rade:	0.00							
ata for Com	mutina F	ffect of	Dolar :	o Maro	r Crrnot	Vahicle	e -	
	putting E		Delay (					
					Ea	stbound		Westbound
hared ln vo hared ln vo						0		351 0
at flow rat					1	700		
at flow rat						700		1700 1700
umber of ma						1		1
ength of st	udy perio	od, hrs.	0.:	25				
-								
orksheet 4	Critical	l Gap an	d Follow	·up ti	me calcu	lation.		
ricinal Co-	Calaul-	ionn.						
ritical Gap Novement	carculat 4	7 10119 :	9					
							<b></b> -	
c,base c,hv	4.1	7.1	6.2					
c,hv	1.0	1.0	1.0					
P hv		0.00						
c,g		0.2						
3,1E	0.00	0.00	0.00					
. c,T:	0.0	0.7	0.0					
1 stage	0.00	0.00	0.00					
t c								
1 atage	4.1	6.4	6.2					
Fallow Up Ti								
Movement				<b>.</b>				
t f.base	2.2	3.5	3.3					
t f.base t f.HV P hv	0.9	0.9	0.9					
Phv	0.00	0.00	0.00					
: <b>[</b>	2.2	3.5	3.3					
Worksheet 6	Impedance	e and ca	pacity 4	quatio:	បន			
Step 1: RT f	rown Mino	r 51.				9		12
Conflicting					-	26		
Potential Ca		factor				20		
Pedestrian I Movement Cap		ractor			1.			
Probability	of Queue	iree St			1.	gC		
			· • ·					
Step 2: LT i	rom Majo	r St.				4		1
Conflicting Potential Ca					11	96 71		
Pedestrian 1		Factor			1.			
dovement Cor	and i tar				11	73		
Probability Maj. L Share	of Oueue	free St			1.			
					1.			

Step 4: LT from Minor St.			7		10		
+							
Conflicting Flows		73					
Potential Capacity		38					
Pedestrian Impedance Factor		1.0					
Maj L, Min T Impedance factor		1.0					
Maj. L. Min T Adj. Imp Factor	_	1.0					
Cap. Adj. factor due to Impeding mymn	ic	1.0 38					
Movement Capacity		20	<b>'</b>				
Worksheet & Shared Lane Calculations							·
Shared Lane Calculations							
Novement	7	8	9	3.0	11	12	
+							
		-		11			1
	ł			<u> </u>			}
	' 4		0	11			1
v(vph) Movement Capacity	387		720				
Shared Lane Capacity	387		, 20				
shared bane capacity							
Worksheet 10 delay, queue length, and		á		••	11	12	
Movement 1 4	<i></i>			10	11	<del></del>	
v(vph) 1173 v/c 95% queue length Control Delay LOS Approach Delay Approach LOS	367 0.01 14.4	14.4					
Morksheet 11 Shared Major LT Impedar Rank 1 Delay Calculations	nce and						

Rank 1 Delay Calculations Movement	2	5	
Poj	1.00	1.00	
Ÿ 11 .	0	351	
V 12	0	0	
Š il	1700	1700	
S 12	1700	1700	
P* 01	1.00	1.00	
D maj left	0.0	0.0	
U number major at lanes	1	1	
Delay, rank 1 mymts	0.0	0.0	

	T	WO-WAY	STOP CO	NTROL (T	WSC) AN	ALYSIS		
Analyst: 1b Intersection: Count Date: Time Period:			£ 32nd :	St .			3.	
Intersection	Orienta	tian:	East-Wes	st Major	St.			
Vehicle Volum	e Data:							
Movements:						9		
Volume:	401	41		351	2		• • • • • • • •	
HFR:	401 456	68	0	251 314	4	0	-	
PHP:				0.80		1.00		
PHV :	0.00	0.00	0.00	0.00	0.00	0.00		~~~~
Flow: Lane width: Walk speed: Malk speed: Median Type:								
of vehicles	, 0							
of vehicles Flared approa  of vehicles t of vehicles	t 0 ch Move : Narth : South	ments: bound	0					
fof vehicles  Flared approa  fof vehicles  af vehicles  Lane usage fo	r 0 ch Move : Narth : South r movem Lane	ements: abound abound wents 1	ი ი , 2 ლა app	Lan			Lane 3	
Flared approa for vehicles t of vehicles t are usage fo	t 0 ch Move : North : South r movem Lane T	ements: abound abound ents 1 1	0 0 ,2 եւ apլ L	Lan T	R	L	т	R
f of vehicles Flared approa f of vehicles f of vehicles tane usage fo	t 0 ch Move : North : South r movem Lane T	ements: abound abound ents 1 1	0 0 ,2 եւ apլ L	Lan T	R		т	
# of vehicles Flared approa # of vehicles # of vehicles Lane unage fo L N Channelized:	r 0 ch Move : North : South r movem Lane T	ements: abound abound ents 1 1	0 0 ,2&3 app	Lan T	R		т	R
# of vehicles Flared approa # of vehicles # of vehicles Lane usage fo L N Channelized: Grade:	r 0 ch Move : North : South r movem Lane T Y N 0.00	ements:  abound  bound  wents:	0 0 L L N	Lan T N	R N		T N	N
Flared approa f of vehicles f of vehicles ane usage fo L N Channelized:	r 0 ch Move : North : South r movem Lame T Y N 0.00	ments: bound bound ments 1 1 R Y	0 0 22 app N	Lan T N	R N	N	T N Lane J	N
Flared approa f of vehicles f of vehicles ane usaye fo L N Channelized: rade:	r 0  ch Move : North : South  r movem Lane T  N 0.00  r movem	ements:  bound  bound  rents:  R  y  ents:  R	0 0 ,2&3 app L N 546 app	Lan T N Proach; Lan T	R N	N L	N Lane J	R N
# of vehicles Plared approa # of vehicles # of vehicles Lame unage fo L N Channelized: Drade: L Y Channelized:	t 0  th Move North South move T  N 0.00  move make T	ements:  bound  bound  R  Y  ents 4,	O O L L N See app	Lan T N Proach; Lan T	R N	N L	T N Lane J	N N
# of vehicles # of vehicles # of vehicles # of vehicles Lame usay= fo L N Channelized: Grade:	r 0 ch Move : North : South r moves Lase T Y N 0.00 r movem	ments: abound bound  Y  ents 4,  R  N	0 0 L N 546 app	Lan T N Proach: Lon T N	R N C 2 R	N L	N Lane J	R N
# of vehicles Flared approa # of vehicles # of vehicles Lane usage fo L N Channelized: Brade: L Y Channelized: Brade: L Y Channelized: Brade: L L L Ane usage fo	to the Move that the Move the	whents:  Y  N  N  R  R	0 0 ,243 app N 546 app L N	Lan T N Proach: Lan T Lan Lan Lan Lan Lan Lan Lan Lan	R N E 2 R N	N L L	N Lane 3 T	R N

Grade:

0.00

10 Channelized: Grade: 0.00 Data for Computing Effect of Delay to Major Street Vehicles: Eastbound westbound Shared in volume, major th vehicles: 251 Shared in volume, major rt vehicles: ō Sat flow rate, major th vehicles: 1700 1700 Sat flow rate, major rt vehicles: 1700 1700 Number of major street through lanes: Length of study period, hrs: 0.25 Morksheet 4 Critical Gap and Follow-up time calculation. Critical Gap Calculations: Movement 4 7 t c.base 4.1 7.1 6.2 t c,hv 1.0 1.0 1.0 P hv 0.00 0.00 0.00 t c,g 0.2 0.1 0.00 0.00 0.00 t 3,1t 0.0 0.7 0.0 t c,T: 1 stage 0.00 0.00 0.00 1 stage 4.1 6.4 6.2 Follow Up Time Calculations: Movement t f,base 2.2 3.5 3.3 t f, HV 0.9 0.9 0.9 P hv 0.00 0.00 0.00 t f 2.2 3.5 3.3 Worksheet 6 Impedance and capacity equations Step 1: RT from Minor St. Conflicting Flows 490 Potential Capacity 582 Pedestrian Impedance Pactor 1.00 Movement Capacity 582 Probability of Queue free St. 1.00 Step 2: LT from Major St. Conflicting Plows 524 Potential Capacity 1053 Pedestrian Impedance Factor 1.00 Movement Capacity 1053 Probability of Queue free St. Maj. L Shared in. Prob. Queue Free St. 1.00 table be amanca and those dands are the time to the ti

Lane usage for movements 10,:1212 approach:

Step 4: LT from Minor St.	7	16	
Conflicting Flows	804		
Potential Capacity	355		
Pedestrian Impedance Factor	1.00		
Maj. L. Min T Impedance factor	1.00		
Maj. L. Min T Adj. Imp Pactor.	3.00		
Cap. Adj. factor due to Impeding mymut	1.00		
Movement Capacity	355		

#### Worksheet 8 Shared Lane Calculations

Shared Lane Calculations Movement	7	В	9	10	11	12	
v (vph)	i		) 0	ĺ		j	
Movement Capacity	355		582			•	
Shared Lane Capacity	355						

#### Worksheet 10 delay, queue length, and LOS

NO TEMESTE				,	 ••		 
v(vph) C m(vph) v/c 95% queue length Control Delay LOS	1053	4 355 0.01 15.3			 		 
Approach Delay			15.3				
Approach LOS			C				

#### worksheet 11 Shared Major LT Impedance and Delay

Rank 1 De	lay Ca	lculat	icurs
-----------	--------	--------	-------

Movement	2	5	
P oj	1.00	1.00	
V il	0	251	
V i2	0	0	
Sil	1700	1700	
S 12	1700	1700	
P* 0j	1.00	1.00	
D maj left	0.0	0.0	
N number major at lanes	1	1	
Delay, rank 1 mvmts	0.0	0.0	

### HCS: Unsignalized Intersections Release 3.1c

ALL-WAY STOP CONTROL(AWSC) ANALYSIS	
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| |Worksheet 1 - Same Intersection Information

1. Analyst: LB

Woodley Rd. & Klingle Rd.

Count Date:
 Time Period:

Existing AM Peak

#### Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	Ll	L1	Ll	Ll
1. LT Volume:	a	1	0	٥
2. TH Volume:	3	0	6	0
3. RT Volume:	n	G	. 0	2
4. Peak Hour Factor:	0.75	0.25	0.50	0.50
5. Flow Rate LT:	U	4	0	0
6. Flow Rate TH:	4	Ð	12	0
7. Flow Rate RT:	0	0	0	4
.8. Flow Rate Total:	4	4	12	4
9. Prop. Neavy Vehicle:	0.00	0.00	0.00	0.00
<ol> <li>Subject Approach</li> </ol>	1	1	1	1
<ol> <li>Opposing Approach</li> </ol>	1	1	1	1
12. Conflicting Approach	1	1	1	1
.13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

#### Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	Ll	Ll
I. Flow Rate Total:	4	4	12	4
2. Flow Rate LT:	D	4	0	0
<ol><li>Flow Rate RT:</li></ol>	0	0	C	4
4. Prop LT in lane:	0.00	1.00	0.00	0.00
<ol><li>Prop RT in lane:</li></ol>	0.00	0.00	0.00	1.00
<ol><li>Prop. Heavy Vehicle:</li></ol>	0.03	0.00	0.00	0.00
7. Geometry Group	1	1	ı	1
<ol><li>a. hLT-adj by Table 10-18</li></ol>	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hNV-adj Table 10-18	1.70	1.70	1.70	1.70
ll. hadj	0.00	0.20	0.00	-0.60

#### Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	£1	Ll	<b>L1</b>	Ll
<ol> <li>Total lane tlow race</li> </ol>	4	4	12	4
<ol><li>hd, initial value</li></ol>	3.2	3.2	3.2	3.2
3. x, initial	0.00	0.00	0.01	0.00
<ol> <li>hd, final value</li> </ol>	3.9	4.1	3.9	3.3
5. x, final value	0.00	0.00	0.01	0.00
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	1.9	2.1	1.9	1.3

#### Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	Ll	1.1	Li	Ll
1. Total lanc flow rate	4	4	12	4
2. Service Time	1.9	2.1	1.9	1.3
<ol> <li>Degree Utilization, x</li> </ol>	0.00	0.33	0.01	0.00
4. Departure headway, hd	3.9	4.1	3.9	3.3
5. Capacity	911	867	916	1079
6. Delay	7.0	7.2	7.0	6.3
7. Level Of Service	A	٨	A	A
8. Delay Approach	7.0	7.2	7.0	6.3
9. LOS, approach	A	A	A	A
10. Delay, Intersection	6.9			

#### HCS: Unsignalized Intersections Palesco 3 3-

ALL-MA	Y STOP CONTROL(AWSC) A	WALYSIS		
Worksheet 1 - Basic Inter 1. Analyst:				
2. Intersection:	Woodley Rd. & Klingl	e Rd.		
3. Count Date: 4. Time Period:	Existing PM Peak			
Horksheet 2 - Volume Adju		icteristics		
	North Bound	South Bound	Rest Bound	
	L1	L1	L1	West Boun
1. LT Volume:	0	15	0	0
2. TH Volume:	j	-0	5	0
3. RT Volume:	0	: 0	õ	2
4. Peak Hour Factor:	0.75	0.60	0.50	0.50
5. Flow Rate LT:	0	25	0	0.30
6. Plow Rate TH:	i	0	10	٥
7. Flow Rate RT:	ō	å	0	4
8. Flow Rate Total:	4	25	10	4
9. Prop. Heavy Vehicle:	0.00	0.00	0.00	0.00
10. Subject Approach	1	1	1	0.00
10. Subject Approach 11. Opposing Approach	i	ì	ì	1
12. Conflicting Approach		1	1	1
13. Geometry Group	i	1	1	1
14. T (Time in Hours):	0.250	*	1	1
Worksheet 3 - Saturation	Readway Adjustment Wor	ksheet		
	North Bound	South Bound	East Bound	West Bour
1. Flow Rate Total:	L1	Ll	L1	ւլ
2. Plow Rate LT:	4	25	10	4
2. Flow Rate LT: 3. Plow Rate RT:	0	25	0	0
J. FIGW RATE RT:	0	O	0	4
1. Prop LT in lane:	0.60 0.00	1.00	0.00	0.00
5. Prop RT in lane:	0.00	0.00	D.00	1.00
6. Prop. Heavy Vohicle:	0.00	0.00	0.00	0.00
7. Geometry Group	1	1	1	1
<ol> <li>hLT-adj by Table 10-18</li> <li>hRT-adj by Table 10-18</li> </ol>	0.20	0.20	0.20	0.20
9. nRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18		1.70	1.70	1.70
11. hadj	0.00	0.20	0.00	-0.60
Worksheet 4 - Departure H	eadway and Service Tim	ne .		
	North Bound L1	South Round	East Sound	West Sour
i. Total lane flow rate	4	L1	Ll	L1
2. hd, initial value	3.2	25 3.2	10	4
3. x. initial	0.00	0.02	3.2	3.2
		0.02	0.01	0.00
	4.0			3.4
4. hd, final value	4.0	4.1	4.0	
4. hd, final value 5. x, final value	. 0.00	0.03	0.01	0.00
4. hd, final value 5. x, final value 6. Move-up time, m	0.00 2.0	0.03	0.01 2.0	2.0
4. hd, final value 5. x, final value 6. Move-up time, m 7. Service Time	2.0 2.0	0.03	0.01	
4. hd, final value 5. x, final value 6. Move-up time, m 7. Service Time	0.00 2.0 2.0 d Level of Service	0.03 2.0 2.1	0.01 2.0 2.0	2.0
4. hd, final value 5. x. final value 6. x. final value 7. Service Time 8. Nove-up time the the the the the the the the the th	0.00 2.0 2.0 2.0 d Level of Service North Bound	0.03 2.0 2.1 South Bound	0.01 2.0 2.0 East Bound	2.0 1.4 West Bour
4. hd, final value 5. x, final value 6. Move-up time. m 7. Service Time Worksheet 5 - Capacity an	0.00 2.0 2.0 d Level of Service North Bound L1	0.03 2.0 2.1 South Bound	0.01 2.0 2.0 East Bound	2.0 1.4 West Bour
4. hd, final value 5. x, final value 6. x, final value 7. Service Time Norksheet 5 - Capacity an 1. Total lane flow rate	0.00 2.0 2.0 d Level of Service North Bound L1 4	0.03 2.0 2.1 South Bound L1 25	0.01 2.0 2.0 East Bound L1	2.0 1.4 West Bour L1 4
4. hd, final value 5. x. final value 6. x. final value 7. Service Time 80rksheet 5 - Capacity and 1. Total lane flow rate 2. Service Time	0.00 2.0 2.0 d Level of Service North Bound L1 4 2.0	0.03 2.0 2.1 South Bound L1 25 2.1	0.01 2.0 2.0 East Bound L1 10 2.0	2.0 1.4 West Bour L1 4 1.4
4. hd, final value 5. x. final value 5. x. final value 7. Service Time Norksheet 5 - Capacity an 1. Total lane flow rate 2. Service Time 3. Degree Utilization, x	0.00 2.0 2.0 d Level of Service  North Bound L1 4 2.0 0.00	0.03 2.0 2.1 South Bound L1 25 2.1 0.03	0.01 2.0 2.0 East Bound L1 10 2.0	2.0 1.4 West Bour L1 4 1.4
4. hd, final value 5. x. final value 6. x. final value 7. Service Time Norksheet 5 - Capacity an 1. Total lane flow rate 2. Service Time 9. Degree Utilization, x 1. Departure headway, hd	0.00 2.0 2.0 d Level of Service North Bound L1 4 2.0 0.00 4.0	0.03 2.0 2.1 South Bound L1 25 2.1 0.03	0.01 2.0 2.0 2.0 East Bound L1 10 2.0 0.01	2.0 1.4 West Bour L1 4 1.4 0.00 3.4
4. hd, final value 5. x. Cinal value 5. x. Cinal value 7. Service Time Norksheet 5 - Capacity an 1. Total lane flow rate 2. Service Time 3. Degree Utilization, x 4. Departure headway, hd 5. Capacity 6. Delay 6. Delay 6. C. Delay 6. More of the content	0.00 2.0 2.0 d Level of Service North Bound L1 4 2.0 0.00 4.0	0.03 2.0 2.1 South Bound 6.1 25 2.1 0.03 4.1 868	0.01 2.0 2.0 East Bound L1 10 2.0 0.01 4.0 901	2.0 1.4 West Boun L1 4 1.4 0.00 3.4 1059
4. hd, final value 5. x. final value 6. x. final value 7. Service Time Norksheet 5 - Capacity an 1. Total lane flow rate 2. Service Time 9. Degree Utilization, x 9. Departure headway, hd 9. Capacity 9. Delay 1. Delay 9.	0.00 2.0 2.0 d Level of Service North Bound L1 4 2.0 0.00 4.0 907 7.0	0.03 2.0 2.1 South Bound L1 25 2.1 0.03 4.1 868 7.3	0.01 2.0 2.0 East Bound L1 10 2.0 0.01 4.0 901	2.0 1.4 West Bour L1 4 1.4 0.00 3.4 1059 6.4
4. hd, final value 5. x. final value 5. x. final value 6. x. final value 7. Service Time 80 rksheet 5 - Capacity and 1. Total lane flow rate 2. Service Time 3. Degree Utilization, x 6. Departure headway, hd 6. Capacity 6. Delay 7. Level Of Service	0.00 2.0 2.0 d Level of Service North Bound L1 4 2.0 0.00 4.0 507 7.0	0.03 2.0 2.1 South Bound L1 25 2.1 0.03 4.1 868 7.3	0.01 2.0 2.0 2.0 East Bound L1 10 2.0 0.01 4.0 901 7.0	2.0 1.4 West Boun L1 4 1.4 0.00 3.4 1059 6.4
4. hd, final value 5. x. final value 6. x. final value 7. Service Time 80 Nove-up time, m 7. Service Time 1. Total lane flow rate 2. Service Time 3. Degree Utilization, x 4. Departure headway, hd 5. Capacity	0.00 2.0 2.0 d Level of Service North Bound L1 4 2.0 0.00 4.0 907 7.0	0.03 2.0 2.1 South Bound L1 25 2.1 0.03 4.1 868 7.3	0.01 2.0 2.0 East Bound L1 10 2.0 0.01 4.0 901	2.0 1.4 West Boun L1 4 1.4 0.00 3.4 1059 6.4

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#### HCS: Unsignalized Intersections Release 3.1c

+	ALL-WAY	STOP CONTROL(AWSC) ANALYSIS
Νo	rksheet 1 - Basic Inters	ection Information
1.	Analyst:	T.B
Ź.	Intersection:	Moodley Rd. & Klingle Rd.
j.	Count Date:	
4.	Time Period:	No Build AM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	Ľλ	1.1	L1
1. LT Volume:	o	1	O	0
2. TH Volume:	3	0	7	0
). RT Volume:	a	0	a	2
. Peak Hour Factor:	0.75	0.25	0.50	0.50
. Flow Rate LT:	ο.	4	C	0
. Flow Rate TH:	4	0	14	0
. Flow Rate RT:	a	0	0	4
. Flow Rate Total:	4	4	14	4
). Prop. Heavy Vehicle:	0.00	0.00	0.00	0.00
O. Subject Approach	1	1	1	1
1. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
3. Geometry Group	1	1	1	1
4. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1 .	L1	£1
1. Flow Rate Total:	4	4.	14	4
2. Flow Rate LT:	0	4	0	0
1. Flow Rate RT:	0	0	0	4
4. Prop LT in lane:	0.00	1.00	0.00	0.00
5. Prop RT in laue:	0.00	0.00	0.00	1.00
6. Prop. Heavy Vehicle:	0.00	0.00	0.00	0.00
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	0.00	0.20	0.00	-0.60

#### Worksheet 4 - Departure Headway and Service Time

		North Bound	South Bound	East Bound	West Bound
		L1	L1 ·	L1	L1
1.	Total lane flow rate	4	4	14	4
2.	hd, initial value	3.2	3.2	3.2	3.2
i.	x, initial	0.00	0.00	0.01	0.00
٩.	hd, final value	3.9	4.1	3.9	3.3
Ś.	x, final value	0.00	0.00	0.02	0.00
Ġ.	Move-up time, m	2.0	2.0	2.0	2.0
7.	Service Time	1.9	2.1	1.9	1.3

Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	Ll	Ll	L1
1. Total lane flow rate	4	4	14	4
2. Service Time	1.9	2.1	1.9	1.3
<ol> <li>Degree Utilization, x</li> </ol>	0.00	0.00	0.02	0.00
. Departure headway, hd	3.9	4.1	3.9	3.3
5. Capacity	909	866	916	1078
6. Delay	7.0	7.2	7.0	6.3
1. Level Of Service	A	A	A	A
8. Delay Approach	7.0	7.2	7.0	6.3
9. LOS, approach	A	A	A	A
10. Delay, Intersection	6.9			

A

	gnalized Intersections Y STOP CONTROL(AWSC)			
Worksheet 1 - Dasic Inter	section Information			
1. Analyst: 2. Intersection:	LB			
2. Intersection:	Woodley Rd. & Kling	le Rd.		
1. Count Date:				
4. Time Period:	No Build PM Peak			
Worksheet 2 - Volume Adju	stments and Site Char	acteristics		
	North Bound	South Bound	East Bound	West Bou
	L1	Ll	Lı	L1
1. LT Volume:	0	18	0	0
2. TH Volume:	3 0	o o •	6	O
3. RT Volume:	0.75	0 •	0.50	2
4. Peak Hour Factor:	0.75	0.60	0.50	0.50
o. Flow Rate LT:		30	0	0
6. Flow Rate TH:	4	0 0	12	0
7. Flow Rate RT:	a	0	O	4
8. Flow Rate Total:	4 G	30	12 0.00 1 1	4
9. Prop. Heavy Vehicle: 10. Subject Approach 11. Opposing Approach	0.00	0.00	0.00	0.00
10. Subject Approach	1	1	1	1
II. Opposing Approach	1	1	1	1
		1	1	ī
<ol> <li>Geometry Group</li> </ol>	1	1	1	1
13. Geometry Group 14. T (Time in Hours):				
Worksheet 3 - Saturation :	Headway Adjustment Wo	rksheet	_	
	North Bound Ll	South Bound Ll		
1. Plow Rate Total:	1.1	30	t.i	L1
2. Flow Rate LT.	•		12	4
1. Plow Rate Total: 2. Flow Mate MT: 3. Flow Rate RT: 4. Prop LT in lane: 5. Prop RT in lane: 6. Prop. Heavy Vehicle: 7. Geometry Group 8. hLT-adj by Table 10-18	0	30	0 0.00 0.00 0.00	D
4 Prop LT in lane.	0	0	. 0	0.00 1.00
E Drop DT in lane:	0.00	1.00	0.00	0.00
6 Drop Manue Vahial-	0.00	0.00	0.00	1.00
7 Geometry Crown	0.00	0.00	0.00	0.00
8 hiT-add by Table 10 10	1	1	1	1
9 bDT-adi by Table 10-18	0.20	0.20	0.20	0.20
10 her-adj by table 10-18	-0.60	-0.60	-0.60	-0.60
7. Geometry Group 8. hLT-adj by Table 10-18 9. hRT-adj by Table 10-18 10. hRV-adj Table 10-18 11. hadj	1.70	30 0 1.00 0.00 0.00 1 0.20 -0.60 1.70 0.20	1 0.20 -0.60 1 70 0.00	1.70
Norksheet 4 - Departure He				-0.00
•		South Bound	Part Bound	West Bou
		L1	Li	L1
1. Total lane flow rate	4		12	4
i. Total lane flow rate 3. hd. initial value	1.2	1 2	3.2	3.2
3. x, initial	0.00	0.03	3.E	0.00
. hd. final value	4.0	30 3.2 0.03 4.1 0.03	4.0	3.4
s. x, final value	0.00	0.03	4.V	3.4 0.00
. Move-up time, m	2.0	2.0	12 3.2 0.01 4.0 0.01 2.0	2.0
. Service Time	1.1 4 3.2 0.00 4.0 0.00 2.0 2.0	2.1	2.0	1.4
Orksheet 5 - Capacity and	Level of Service			
	North Bound	South Bound	East Bound	West Bou
	1,1	L1	Ll	Ll
l. Total lane flow rate	4 2.0 0.00 4.0 904	30	12	4
. Service Time	2.0	2.1 0.03 4.1	2.0 0.01 4.0	1.4
3. Degree Utilization, x 3. Departure headway, hd	0.00	0.03	0.01	0.00
. Departure headway, hd	4.0	4.1	4.0	3.4
Capacity	904		898	1054
		7.3	7.0	5.1
. Level Of Service . Delay Approach . LOS, approach	A	A	À	A
. netsy Approach	A 7.0 2	7.3	7.0	5.4
. LUS. approach	A	A	A	_
0. Delay, Intersection	7,1	~	A	A

RCS: Unsignalized Intersections Release 3.1c

\_ALL WAY STOP CONTROL(AWSC) ANALYSIS\_

Norksheet 1 - Basic Intersection Information

1. Analyst: 2. Intersection: 3. Count Date: Woodley Rd. & Klingle Rd.

4. Time Period:

Build AM Peak

#### Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	Ll	Ll	L1	Ll
1. LT Volume:	a	137	a	0
2. TH Volume:	3	0	7	0
<ol><li>RT Volume:</li></ol>	0	0	o o	260
4. Peak Hour Factor:	0.75	0.80	0.50	0.80
<ol><li>Flow Rate LT:</li></ol>	0	171	0	0
6. Flow Rate TH:	4	0	14	0
7. Flow Rate RT:	0	0	٥	325
8. Flow Rate Total:	4	171	14	325
<ol><li>Prop. Heavy Vehicle:</li></ol>	0.00	0.02	0.00	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	ı
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

#### Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	Ll	L1	Ll	L1
1. Flow Rate Total:	4	171	14	325
2. Flow Rate LT:	Q	171	0	C
3. Flow Rate RT:	0	0	0	325
4. Prop LT in lane:	0.00	1.00	0.00	0.00
<ol><li>Prop RT in lane:</li></ol>	0.00	0.00	0.00	1.00
6. Prop. Heavy Vehicle:	0.00	0.02	0.00	0.02
7. Geometry Group	1	1	1	1
0. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1,70
11. hadj	0.00	0.23	0.00	-0.57

#### Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	Li	Ll	L1	Lì
<ol> <li>Total lane flow rate</li> </ol>	4	171	14	325
<ol><li>hd, initial value</li></ol>	3.2	3.2	3.2	3.2
3 x, initial	0.00	0.15	0.01	0.29
4. hd, final value	4 . B	4.8	4.6	3.8
<ol><li>x, final value</li></ol>	0.01	0.23	0.02	0.34
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	2.8	2.8	2.6	1.8

#### Norksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	Ll	Ll	L1	L1
1. Total lame flow rate	4	171	14	325
2. Service Time	2.8	2.8	2.6	1.8
<ol> <li>Degree Utilization, x</li> </ol>	0.01	0.23	0.02	0.34
4. Departure headway, hd	4 - 8	4.8	4.6	3.8
5. Capacity	707	716	744	927
5. Delay	7.8	9.2	7.7	8.7
7. Level Of Service	À	A	A	A
i. Delay Approach	7.8	9.2	7.7	8.7
9. LOS, approach	A	A	A	Α.
10. Delay, Intersection	8.9			

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# HCS: Unsignalized Intersections Release 3.1c

	-WAY STOP CONTROL(AWSC) ANALYSIS
Worksheet 1 - Basic In	tersection Information
<ol> <li>Analyst:</li> </ol>	LB
<ol><li>Intersection:</li></ol>	Woodley Rd. & Klingle Rd.
<ol><li>Count Date:</li></ol>	
4. Time Period:	Build FM Peak

#### Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	ľ.1	L1	Ll	L1
1. LT Volume:	0	302	D	D
2. TH Volume:	3	0	6	0
3. RT Volume:	0	0	. 0	187
4. Peak Hour Pactor:	0.75	0.85	0.50	0.80
5. Flow Rate LT:	o	355	0	G
6. Flow Rate TH:	4	0	12	Ô
7. Flow Rate RT:	C	0	70	233
8. Flow Rate Total:	4	355	12	233
9. Prop. Heavy Vehicle:	0.00	0.02	0.00	0.02
<ol><li>Subject Approach</li></ol>	1	1	1	1
11. Opposing Approach	1	ī·	ī	ţ
12. Conflicting Approach	1	1	i	•
13. Geometry Group	i	î	1	1
14 T (Time in Moura).	0.350	•	•	1

### Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	Ll	Ll	Ll	Ll
<ol> <li>Flow Rate Total:</li> </ol>	4	355	12	233
2. Flow Rate LT:	0	355	٥	0
<ol><li>Flow Rate RT:</li></ol>	o	0	ō	233
4. Prop LT in lane:	0.00	1.00	0.00	0.00
<ol><li>Prop RT in lane:</li></ol>	0.00	0.00	0.00	1.00
<ol><li>Prop. Heavy Vehicle:</li></ol>	0.00	0.02	0.00	0.02
7. Geometry Group	1	1	1	1
<ol> <li>hLT-adj by Table 10-18</li> </ol>	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-19	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	0.00	0.23	0.00	-0.57

# Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	Ll	L1	Lì
<ol> <li>Total lane flow rate</li> </ol>	4	355	12	233
<ol><li>hd, initial value</li></ol>	3.2	3.2	3.2	3.2
3. x, initial	0.00	0.32	0.01	0.21
4. hd. final value	4.8	4.7	5.0	4.2
5. x, final value	0.01	0.46	0.02	0.27
5. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	2.8	2.7	3.0	2.2

# Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	f.1	1.1	L1	Ll
<ol> <li>Total lane flow rate</li> </ol>	4	355	12	233
2. Service Time	2.5	2.7	3.0	2.2
<ol> <li>Degree Utilization, x</li> </ol>	0.01	0.46	0.02	0.27
<ol> <li>Departure headway, hd</li> </ol>	4.8	4.7	5.0	4.2
5. Capacity	704	751	665	813
6. Delay	7.9	11.6	B. 1	8.8
7. Level Of Service	A	В	Λ	A
8. Delay Approach	7.9	11.6	8.1	8.6
9. LOS, approach		R.	A	Ā
10. Delay, Intersection	10.4	_	•	•

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#### HCS: Unsignalized Intersections Release 3.1c

Build AM Peak 82

l	ALL-WAY STOP CONTROL (AMSC) ANALYSIS	
Worksheet 1 - Basic	Intersection Information	
.1. Analyst:	LB	
<ol><li>Intersection:</li></ol>	Woodley Rd. & Klingle Rd.	

#### Worksheet 2 - Volume Adjustments and Site Characteristics

3. Count Date:

4. Time Period:

	North Bound	South Bound	East Hound	West Bound
	Li	Ll	L1	Ll
1. LT Volume:	0	205	0	0
2. TH Volume:	. 3	٥	7	٥
3. RT Volume:	0	: 0	0	34B
4. Peak Hour Factor:	0.75	0.80	0.50	0.85
5. Plow Rate LT:	0	256	O	0
6. Plow Rate TH:	4	0	14	0
7. Flow Rate RT:	0	0	¢	409
<ol><li>Flow Rate Total:</li></ol>	4	256	14	409
9. Prop. Heavy Vehicle:	0.00	0.02	0.00	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

#### Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	Fast Bound	West Bound
	L1	L1	L1	I,l
1. Flow Rate Total:	4	256	14	409
2. Flow Rate LT:	0	256	0	0
<ol> <li>Flow Rate RT:</li> </ol>	O	C	٥	409
4. Prop LT in lane:	a.bo	1.00	0.00	0.00
5. Prop RT in lane:	0.00	0.00	0.00	1.00
<ol><li>Prop. Heavy Vehicle:</li></ol>	0.00	0.02	0.00	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
<ol><li>hRT-adj by Table 10-18</li></ol>	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	0.00	0.23	0.00	-0.57

#### Worksheet 4 - Departure Meadway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	Ll	L1	Ll
<ol> <li>Total lane flow rate</li> </ol>	4	256	14	409
<ol><li>hd, initial value</li></ol>	3.2	3.2	3.2	3.2
3. x, initial	0.00	0.23	0.01	0.36
4. hd, final value	5.1	5.0	5.0	4.0
<ol><li>x, final value</li></ol>	. 0.01	0.36	0.02	0.46
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	3.1	3.0	3.0	2.0

#### Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	Ll	Ll	L1	L1
<ol> <li>Total lane flow rate</li> </ol>	4	256	14	409
2. Service Time	3.1	3.0	3.0	2.0
<ol> <li>Degree Utilization, X</li> </ol>	0.01	0.36	0.02	0.46
<ol> <li>Departure headway, hd</li> </ol>	5.1	5.0	5 . D	4.0
5. Capacity	645	685	676	870
6. Delay	8.1	10.8	0.1	10.4
<ol><li>Level Of Service</li></ol>	A	В	A	B
8. Delay Approach	A.1	10.8	8.1	10.4
9. LOS, approach	A	Ð	A	В
10. Delay, Intersection	10.5			

	nalized Intersections			
ALL-WAY	STOP CONTROL(AWSC) A	NALYSIS		
Worksheet 1 - Basic Inter: 1. Analyst:	ection Information LB			
2. Intersection:	Woodley Rd. & Kling!	e Rd.		
3. Count Date:				
4. Time Period:	Build PM Peak 52			
Worksheet 2 - Volume Adjus	itments and Site Chara	cteristics		
	North Bound	South Sound	East Bound	West Bound
1. LT Volume:	L1	Ll	L1	L1
2. TH Volume:	0 3	401 0	0	٥
3. RT Volume:	0	0	6 0	0 248
4. Peak Hour Factor:	0.75	0.85	0.50	0.80
5. Flow Rate LT:	0	471	0.30	0.80
6. Flow Rate TH:	4	0	12	o
1 Plow Pate DT.	ō	ū	0	310
8. Flow Rate Total:		471	12	310
9. Prop. Heavy Vehicle:	0.00	0.02	0.00	0.02
10. Subject Approach 11. Opposing Approach	1	1	1	1
<ol> <li>Opposing Approach</li> </ol>	1	1	ì	i
12 Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):				
Worksheet 3 - Saturation F	ieadway Adjustment Wor	ksheet		
	North Bound L1	South Bound L1	East Bound L1	West Bound
1. Flow Rate Total:		471	12	310
2. Flow Rate LT:	Ó	471	D	, , , , , , , , , , , , , , , , , , ,
]. Plow Rate RT:	0 0 0.00 0.00 0.00 1	0	ā	310
4. Prop LT in lane:	0.00	1.00	0.00	0.00
5. Prop RT in lane:	0.00	0.00	0.00	1.00
<ol><li>Prop. Heavy Vehicle:</li></ol>	0.00	0.02	0.00	0.02
<ol> <li>Geometry Group</li> </ol>	1	1	1	1
8. hLT-adj by Table 10-18	0.20 -0.60	0.20	0.20	0.20
9. hRT-ad) by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18		1.70	1.70	1.70
11. hadj	0.00	0.23	0.00	-0.57
Worksheet 4 - Departure He	eadway and Service Tim	ne .		
	North Bound	South Bound L1	East Bound	West Bound
1. Total lane flow rate	4	471	L1 12	L1 310
2. hd. initial value	3.2	3.2	3.2	3.2
3. x, initial	0.00	0.42	0.01	0.28
4. hd, final value	5.2	4 9	5.5	4.5
<ol><li>x, final value</li></ol>	0.01	0.64	0.02	0.39
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	3.2	2.9	3.5	2.5
Worksheet 5 - Capacity and	Level of Service			
	North Bound	South Bound	East Bound	West Bound
1. Total lane flow rate	L1	L1	L1	L1
2. Service Time	4 3.2	471 2.9	12	310
3. Degree Utilization, x	0.01	2.9 D.54	3.5 0.D2	2.5
4. Departure headway, hd		4.9	5.5	0.39
5. Capacity	636	722	599	755
6. Delay	B.3	16.2	8.6	10.4
7. Level Of Service		C	A	В
. Delay Approach	a.3	16.2	8.6	10.4
9. LOS, approach 10. Delay, Intersection	A 13.8	¢	A	6

HCS: Signalized Intersections Release 3.1c

Inter:Cleveland Ave. & Garfield St.City/St:Washington D.C.Ahalyst:LBProj #:Date:8/24/00Period:Existing AM Peak HourE/W St:Cleveland Ave.N/S St:32nd St.

	17 = 4	tbound	GNALIZEI Westi			hbound		SOU	thbou	ınd	F
	L	T R		ouna R.				Bou.	Т	R	
	1 2		1 "		~	•		_	-		_ i
No. Lanes	в 0	1 0	1	1 0	0	1	0	0	1	0	~
LGConfig		LTR	L 2	TR.		LTR			LTR		
Volume	0	612 16	117 90		6 4		1		7	21	
Lane Widt	th	16.0	11.0 1		1	5.0	j		12.0	_	
RTOR Vol	- 1	0		0	l	0	1			0	
Duration	0.25	Area		l other							
Phase Con	nbination	1 1 2	${3}^{s_{1}g_{1}u_{2}}$	4	10118	5	6	7			
EB Left		P	3	NB	Left	Þ					
Thru		P			Thru	P					
Right	t	Þ			Right	₽					
Peďs		х х		ļ	Peds	X					
WB Left		P		SB	Left	P					
Thru		P		1	Thru	P					
Right	t	Þ		ı	Right						
Peds		х х			Peds	Х					
NB Right				EB	Right						
SB Right	t			WB	Right						
Green		36.0 21.0	)			15.0					
Yellow		4.0 4.0	)			4.0					
Yellow All Red		4.0 4.0 2.0 2.0	)								
Yellow	ngth: 90	4.0 4.0 2.0 2.0 .0 secs		rformanc		4.0					
Yellow All Red Cycle Ler		4.0 4.0 2.0 2.0 .0 secs Interse	ection Pe	erformanc	e Summa	4.0 2.0	Appr	oach			
Yellow All Red Cycle Ler Appr/	Lane	4.0 4.0 2.0 2.0 .0 secs Interse Adj Sat	ection Pe Rat:			4.0 2.0	Appr	oach			· · · · · ·
Yellow All Red Cycle Ler Appr/ I		4.0 4.0 2.0 2.0 .0 secs Interse Adj Sat Flow Rate	ection Pe Rat:		e Summa	4.0 2.0 ry_ roup					· · · · · · ·
Yellow All Red Cycle Ler Appr/ I	Lane Group Capacity	4.0 4.0 2.0 2.0 .0 secs Interse Adj Sat Flow Rate	ection Pe Rat:	Los	e Summa Lane G	4.0 2.0 ry_ roup					
Yellow All Red Cycle Ler Appr/ I Lane ( Grp (	Lane Group Capacity	4.0 4.0 2.0 2.0 .0 secs Interse Adj Sat Flow Rate	ection Pe Rat:	Los	e Summa Lane G	4.0 2.0 ry roup					
Yellow All Red Cycle Ler Appr/ I Lane ( Grp ( Eastbounc	Lane Group Capacity d	4.0 4.0 2.0 2.0 0 secs Interse Adj Sat Flow Rate (s)	ection Pe Rat: v/c	9/C	e Summa Lane G Delay	4.0 2.0 ry roup	Delay	LOS			
Yellow All Red Cycle Ler Appr/ I Lane (Grp (Eastbound LTR Westbound	Lane Group Capacity d	4.0 4.0 2.0 2.0 0 secs Interse Adj Sat Flow Rate (s)	ection Pe Rat: v/c	g/C 0.400	e Summa Lane G Delay	4.0 2.0 ry roup	Delay	LOS			
Yellow All Red Cycle Ler Appr/ I Lane ( Grp ( Eastbound	Lane Group Capacity d 656	4.0 4.0 2.0 2.0 0 secs Interse Adj Sat Flow Rate (s)	ection Pe Rat: v/c	9/C	Delay	4.0 2.0 ry roup LOS	Delay	LOS			
Yellow All Red Cycle Ler Appr/ I Lane ( Grp ( Eastbound LTR	Lane Group Capacity d 656 d 133 715	4.0 4.0 2.0 2.0 .0 secs Interse Adj Sat Flow Rate (s)	rection Per Rat:	9/C 0.400	Delay 80.4	4.0 2.0 ry roup LOS	Delay	LOS			
Yellow All Red Cycle Ler Appr/ I Lane (Grp (Death of the Companie) Eastbound LTR Westbound In TR	Lane Group Capacity d 656 d 133 715	4.0 4.0 2.0 2.0 .0 secs Interse Adj Sat Flow Rate (s)	rection Per Rat:	9/C 0.400	Delay  80.4  133.7 17.8	4.0 2.0 ry roup LOS	Delay	LOS F			
Yellow All Red Cycle Ler Appr/ I Lane ( Grp ( Eastbound LTR Westbound I TR Northbour	Cane Group Capacity d 656 d 133 715 nd	4.0 4.0 2.0 2.0 .0 secs Interse Adj Sat Flow Rate (s) 1640	1.06	9/C 0.400 0.400 0.400	Delay  80.4  133.7 17.8	4.0 2.0 ry roup LOS	Delay 80.4 82.1	LOS F			-
Yellow All Red Cycle Ler Appr/ I Lane ( Grp ( Eastbound LTR Westbound L TR Northbour LTR	Cane Group Capacity d 656 d 133 715 nd	4.0 4.0 2.0 2.0 .0 secs Interse Adj Sat Flow Rate (s) 1640	1.06	9/C 0.400 0.400 0.400	80.4 133.7 17.8	4.0 2.0 ry roup LOS	Delay 80.4 82.1	LOS F			

Inter: Cleveland Ave. & Garfield St. Analyst: LB Proj #:
Date: 8/24/00 Period: Existing PM Peak Hour E/W St: Cleveland Ave. Proj #:
Period: Existing PM Peak Hour N/S St: 32nd St.

		SIG	NALIZED	INTERSE	CTION	SUMMARY	,			
	East	bound	Westb			thbound		South	bound	
	} L	T R	L T	R	L	T F	<b>ا</b> ا	L T	R	
•	I				:					
No. Lanes	0	1 0	1	1 0	0	1 (	)		1 0	
LGConfig		LTR		R		LTR			TR	
Volume	_		249 17		3	2 1	j	8 3	8	
Lane Width	ոլ ւ		11.0 11		-	15.0	1	12	.0	
RTOR Vol	l	0		0	1	0	ŀ		0	Į
Duration	0.25	Area T		l other l Operat						
Phase Comb	pination	1 2	319114	4	топв	5	-6	7	8	
EB Left		P	•	NB	Left	p	Ü	,	·	
Thru		P			Thru	P				
Rìght		P		1	Right	-				
Peds		х х			Peds	•				
WB Left		P		SB	Left	P				
Thru		P		i	Thru	P				
Right		P			Right	P				
Peds		х х		!	Peds					
NB Right				EB	Right					
SB Right				WB	Right					
Green	3	6.0 21.0				15.0				
Yellow	4	.0 4.0				4.0				
All Red	2	.0 2.0				2.0				
Cycle Leng	th: 90.0	secs								
	-	Intersec	tion Pe	rformanc	e Summ	arv				
Appr/ La	ine	Adj Sat	Rati			Group	App	roach		
Lane Gr	coup .	Flow Rate					• •	-		
Grp Ca	apacity	(8)	v/c	g/c	Delay	LOS	Dela	y LOS		
Eastbound										
LTR 6	554	1634	0.32	0.400	19.9	В	19.9	В		
Westbound										
	397	993	0.78	0.400	37.9	D				
	720	1799	0.30	0.400	19.5	В	30.4	С		
	-		0.35	0.154	13.5		50.4	Č		
Northbound	1									
LTR 2	267	1604	0.05	0.167	31.9	C	31.9	C		
Southbound	i									
LTR 2	33	1398	0.13	0,167	33.1	С	33.1	С		
I	ntersect	ion Delay	= 27.7	(sec/ve	h) I	ntersec	tion	LOS =	С	

# HCS: Signalized Intersections Release 3.1c

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.

Proj #:

Analyst: LB
Date: 8/24/00
E/W St: Cleveland Ave. Period: 2017 No Build AM Peak Hour N/S St: 32nd St.

	<del></del>	Da.						CTION						
	1		tbour T	R	Lwes	tbou T	na R	Nor	thbou T	na R		thbo		-
	1	•	•	IC.	"	1,	ĸ	"	1	R	L	T	R	ļ
No. Lanes		0	1	0	1.	1	0	0	1	0		1	0	-
LGConfig	1		LTR		L	TR		ĺ	LTR			LTF	3	- 1
Volume	.   0		722	19	138	106	5	7	-	o .	20	8	25	- (
Lane Widt.	h.		16.0		11.0	11.0		ĺ	15.0			12.0		- {
RTOR Vol	I			0	ł		0			0			0	1
Duration	0.	25		Area	Туре:	All	other	areas		<del></del>				
Phase Com	binat	ior	1 1	2		jnai 4	Operat	ions_	- 5	6	7		8	
BB Left			P	~	-	7	ŃВ	Left	Þ	o			0	
Thru			P				146	Thru	P					
Right			P					Right						
Peds			x	Х				Peds	x					
WB Left			P	•			SB	Left:	P					
Thru			P				1 55	Thru	Þ					
Right			P					Right	_					
Peds			x	х	1			Peds	x					
NB Right			••	••			EB	Right						
SB Right							WB	Right						
Green			36.0	21.0			; 110	Right	15.0					
Yellow			4.0	4.0					4.0					
All Red			2.0	2.0					2.0					
Cycle Leng	th:	90.		3ecs					2.0					
					ction	Perf	ormanc	e Summ	ary					
Appr/ La	ine		λdj	Sat		tios			Group	App	roact	<u> </u>		
Lane Gr	coup		Flow	Rate					-	• • •				
Grp Ca	apaci	ty	(	(B)	v/c	g	/c	Delay	LOS	Dela	y LOS	<del>-</del>		
Eastbound									-					
LTR	556		164	11	1.25	. 0	.400	153.8	F	153.	8 F			
Westbound														
L	34		235	5	1.83		.100	438.7	F					
	715		178		0.19		.400	18.2	В	251.	5 F			
Northbound	ì													
LTR 2	287		172	2	0.08	0	.167	32.2	C	32,2	c			
Southbound	ì										_			
ren -														
LTR 2	226		135	6	0.39	0	.167	38.4	D	38.4	D			

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.

Analyst: LB

Proj #:

Date: 8/24/00 E/W St: Cleveland Ave. Period: 2017 No Build PM Peak Hour

N/S St: 32nd St.

Thru P Right P P Right P Peds X X X					INTERSE				~		
Configuration   Configuratio								- 1			
Configuration   Configuratio				l		.					
Colume   C						\ 0		0 }			1
Name   Night   Nig						١		اء			
Nuration   0.25   Area Type: All other areas   Signal Operations		_						19	-		
No.				11.0 11		1 '		)	1		- 1
Signal Operations   Sign	KIOK VO	1	U	1	U	1	U	1		U	1
### Combination 1 2 3 4   5 6 7 8   6 8   6 8   6 8   6 8   7 8	Duratio	n 0.25	Area					, ,			
Thru P Right P Peds X X X Peds B Left P Thru P Right P Peds X X X Peds B Left P Thru P Right P Peds B Right P Peds B Right B R	Phase C	ombinatio	n 1 2			10115	5	6	7	8	
Right   P   Peds   X   X   X	EB Lef	t			NB	Left	₽				
Peds X X X SB Left P Thru P Right P Peds X X X Peds X X Peds X X Peds X X Peds B Right	Thr	u	P		1	Thru	P				
SB Left   P	Rig	ht			1	Right	P				
Thru P Right P Right P Peds X X X Peds EB Right			X X		l						
Right Peds X X Peds Right EB Right WB R					SB		-				
Peds											
BB Right					l l		р				
## Right			х х								
Second											
Second   S	SB Rig	ht			[ WB	Right					
11   Red	Green			ı							
Eycle Length: 90.0 secs Intersection Performance Summary Lane Adj Sat Ratios Lane Group Approach anne Group Flow Rate Exp Capacity (s) V/C g/C Delay LOS Del	Yellow										
Intersection   Performance   Summary   Adj   Sat   Ratios   Lane   Group   Approach							2.0				
Approach	Cycle L	ength: 90	.0 secs	etion De	-formana	o Cumm	222				
TR 267 1602 0.05 0.167 31.9 C 33.6 C 33.6 C	Annr/	Land						Appro	ach		
TR Capacity (s) v/c g/C Delay LOS Delay LOS  Castbound  CTR 654 1636 0.38 0.400 20.8 C 20.8 C  Clestbound  CTR 720 1800 0.35 0.400 20.2 C 51.1 D  Corthbound  CTR 267 1602 0.05 0.167 31.9 C 31.9 C  Couthbound  CTR 231 1388 0.16 0.167 33.6 C 33.6 C					Ų5	Dane (	3LOGP	uppr.	J4011		
Asstbound  ATR 654 1636 0.38 0.400 20.8 C 20.8 C  Destbound  A 369 922 0.99 0.400 72.4 E  AR 720 1800 0.35 0.400 20.2 C 51.1 D  Destbound  ATR 267 1602 0.05 0.167 31.9 C 31.9 C  Southbound  ATR 231 1388 0.16 0.167 33.6 C 33.6 C					0/0	Dolay	LOS	Delay	LOS		
ATR 654 1636 0.38 0.400 20.8 C 20.8 C  Restbound  Rest 720 1800 0.35 0.400 72.4 E  ROTTH 267 1602 0.05 0.167 31.9 C 31.9 C  ROUTHBOUND  ROTTH 231 1388 0.16 0.167 33.6 C 33.6 C	Grp	capacity	(5)	٧/ ۵	9/ ¢	Delay	DO3	Delay	nos		
Restbound  TR 720 1800 0.35 0.400 72.4 E  ROTTH 267 1602 0.05 0.167 31.9 C 31.9 C  Southbound  TR 231 1388 0.16 0.167 33.6 C 33.6 C	Eastbou	nd	· · · · · ·						_		
369 922 0.99 0.400 72.4 E 720 1800 0.35 0.400 20.2 C 51.1 D  Northbound  ATR 267 1602 0.05 0.167 31.9 C 31.9 C Southbound  ATR 231 1388 0.16 0.167 33.6 C 33.6 C	LTR	654	1636	0.38	0.400	20.8	C	20.8	C		
369 922 0.99 0.400 72.4 E 720 1800 0.35 0.400 20.2 C 51.1 D  Northbound  ATR 267 1602 0.05 0.167 31.9 C 31.9 C Southbound  ATR 231 1388 0.16 0.167 33.6 C 33.6 C	Westbou	nd									
TR 720 1800 0.35 0.400 20.2 C 51.1 D  Forthbound  TR 267 1602 0.05 0.167 31.9 C 31.9 C  Southbound  TR 231 1388 0.16 0.167 33.6 C 33.6 C	L		922	0.99	0.400	72.4	E				
ATR 267 1602 0.05 0.167 31.9 C 31.9 C Southbound ATR 231 1388 0.16 0.167 33.6 C 33.6 C	TR							51.1	D		
Southbound TR 231 1388 0.16 0.167 33.6 C 33.6 C	Northbo	und									
TR 231 1388 0.16 0.167 33.6 C 33.6 C	LTR	267	1602	0.05	0.167	31.9	С	31.9	С		
	Southbo	ound									
Intersection Delay = 41.9 (sec/yeh) Intersection LOS = D	LTR	231	1388	0.16	0.167	33.6	С	33.6	C		
		Interce	ction Delay	= 41.9	(sec/ve	ah) fi	nterse	ction	LOS =	. D	

### HCS: Signalized Intersections Release 3.1c

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.

Proj #: Period: 2017 Build AM Peak Hour N/S St: 32nd St.

Analyst: LB Date: 8/24/00 E/W St: Cleveland Ave.

	Eastbound	j Wes	tbound	1 17 L L		
				Northboun		uthbound
	L T F	S T	T R	L T	R L	T R
No. Lanes	0 1	1	1 0	0 1	0 0	1 0
LGConfig	LTR	L	TR	LTR		LTR
/olume	0 686 19		73 5	7 5 0	20	8 25
Lane Width	16.0	111.0	11.0	15.0	1	12.0
RTOR Vol	0	ļ	0	0		0
Duration	0.25 A		All other			
Phase Combin	ation 1	2 3	gnal Operat 4	10ns5	6 7	8
EB Left	P		NB	Left P	-	-
Thru	Ē		]	Thru P		
Right	į.		!	Right P		
Peds	X	x		Peds X		
WB Left	P	44	SB	Left P		
Thru	P		""	Thru P		
Right	P			Right P		
Peds	X	x	1	Peds X		
NB Right	Λ.	14	EB	Right		
SB Right			WB	Right		
Green	36.0	21.0	1 45	15.0		
Yellow		1.0		4.0		
All Red		2.0		2.0		
Cycle Length		ecs		2.0		
cycle hengen			Performanc	e Summary		
Appr/ Lane			atios	Lane Group	Approac	h
Lane Grou				20110 01 0 mp	·-F	
	city (s)		q/C	Delay LOS	Delay LO	S
Eastbound						
LTR 656	1640	1.19	0.400	128.6 F	128.6 F	
Westbound						
L 106	264	1.62	0.400	346.1 F		
TR 713	1783	0.14	0.400	17.5 B	227.6 F	
Northbound						
LTR 287	1722	0.08	0.167	32.2 C	32.2 C	
Southbound						
Documound						
LTR 226	1356	0.39	0.167	38.4 D	38.4 D	

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.
Analyst: LB Proj #:
Date: 8/24/00 Period: 2017 Build PM Peak Hour
E/W St: Cleveland Ave. N/S St: 32nd St.

		SI	GNALIZED	INTERSE	CTION S	SUMMAR'	Y			
	Eas	tbound	West	ound	Nort	thbound	d T	Sout	hbound	
	L	T R	P 2	R	L	T	R	L	T R	
No. Lan	es 0	1 0	1	1 0	0	1 0	<del>-</del>	0	1 0	
LGConfi	q	LTR	lLT	TR.	-	LTR			LTR	
Volume	0	159 9	294 16	3 1	la :	2 1	9		10	
Lane Wi	dth	16.0	11.0 11	. 0	1	15.0		1	2.0	
RTOR Vo	1	0		0		0			0	
	<u> </u>				<u> </u>					
Duratio				l other l Operat						
	ombination		3	4		5	6	7	8	
EB Lef	-	₽		ИB	Left	P				
Thr		P			Thru	P				
Rig		P		· ·	Right	P				
Ped		X X		1	Peds					
WB Lef		P		SB	Left	P				
Thr		Þ			Thru	P				
Rig		P			Right	P				
Ped		X X			Peds					
NB Rig				EB	Right					
SB Rig	ht			WB	Right					
Green		36.0 21.0				15.0				
Yellow		4.0 4.0				4.0				
All Red		2.0 2.0				2.0				
Cycle P	ength: 90.			_						
*7	, — —			rformanc						
Appr/	Lane	Adj Sat	Rati	.08	Lane (	iroup	Appr	oach		
Lane	Group	Flow Rate		7.0					_	
Grp	Capacity	(s)	v/c	g/C	Delay	LOS	Delay	LOS		
Eastbou	nd							-		—
LTR	653	1633	0.32	0.400	19.9	В	19.9	В		
Westbou	nd									
L	399	997	0.92	0.400	54.4	D				
TR	720	1799	0.28	0.400	19.3	В	41.8	Ð		
		-1.75	0.25	00			11.0	~		
Northbo	und									
LTR	267	1602	0.05	0.167	31.9	С	31.9	C		
Southbo	und									
LTR	231	1388	0.16	0.167	33.6	С	33.6	Ç		
	Intersec	tion Delay	= 35,B	(sec/ve	h) Ir	ntersec	ction	LOS =	. D	

# HCS: Signalized Intersections Release 3.1c

			610	יז ז מואי	ZED T	Mannen	om ton	01701				
	E	astbour			tbou	NTERSE		summai thbou			thbound	3 T
	ւ	T	R	L	T	R	L	T	R	L		3
•					-			•	.	_	•	.
No. Lanes	3	0 1	0	1	1	0	0	1	0	0	1 (	j
LGConfig		LTR		L	TR		i	LTR	- 1		LTR	
Volume	. 0	674	19	138	61	5	7		0 [2	20	8 25	5 }
Lane Widt	:h	16.0		11.0	11.0		1	15.0	l		12.0	- 1
RTOR Vol	ı		0			0	ł	•	0 [		0	1
Duration	0.2	5	Area :			other					- *****	
Phase Con	pinati	on 1	2	— <sup>519</sup>	gnaı 4	Operat	ions_	5	- 6	7	в	
EB Left		P	-	3	7	NB	Left	P	0	,	В	
Thru		P				NB	Thru					
Right		Þ					Right	P				
Peds	•	x	х			1						
WB Left		P	Λ			an.	Peds	X				
Thru		P				SB	Left	P				
		_					Thru	P				
Right Peds		P X	16				Right					
NB Right		Y	Х			1	Peds	Х				
						EB	Right					
SB Right Green	•	26.0				WB	Right					
Yellow		36.0	21.0					15.0				
All Red		1.0	4.0					4.0				
		2.0	2.0					2.0				
Cycle Len	igen: 90		secs		D E							
Appr/ L	ane	11	ntersed   Sat									
	iroup		Sat   Rate	Ka	tios		Lane	Group	Appı	roach		
	apacit			=7-		75						
orb (	арастс	Y Y	(9)	v/c	9.	7ē	ретау	LOS	Delay	LOS		
Eastbound	[	•••										
LTR	656	164	10	1.17	7 0	.400	120.7	F	120.7	7 F		
Westbound	1											
L	109	273	1	1.58	١ ٨	.400	326.3	F				
TR	712	178		0.12		.400	17.3		226.5	F		
Northboun	ıd											
LTR	287	172	12	0.08	3 0	.167	32.2	c	32.2	С		
Southbour	ıd											
LTR	226	135	66	0.39	0	.167	38.4	D	38.4	D		
	Interse	ection	Delay	= 136	i.3 (:	sec/ve	h) I	nters	ection	LOS	= F	
			_									

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.
Analyst: LB Proj #:

Date: 8/24/00 E/W St: Cleveland Ave.

Proj #: Period: 2017 Build PM Peak Hour N/S St: 32nd St.

	Eas	thound			вtbou			SUMMAR thboun		Sout	hbou	ind
	L L	Т	R	Г	T	R	L			L	T	R
No. Lanes	\- <del></del>	1	0	<del></del>	1	0	J	1	<del>-</del> - -	0	1	
ko. names LGConfiq	) "	LTR	Ů.	l ŗ	_	U	1	LTR	٠	U	LTR	•
Volume	0	148 9	1	294	150	1	3	2 1	وا	3		10
Volume Lane Width	ا	16.0	,		11.0			15.0	1		2.0	•
RTOR Vol	1	10.0	,	1	11.0	0	}	15.0		4	2.0	0
RIOR VOI	I	,	•	1		U	ł.	J	ı			•
Duration	0.25	- 1	rea			other Operat						
Phase Comb.	ination	ı 1	2.	—31°	4			5	6	7		9
EB Left		P				NB	Left	P				
Thru		P					Thru	P				
Right		P				-	Right	P				
Peds		X	Х			i	Peds					
WB Left		p				SB	Left	P				
Thru		P					Thru	P				
Right		Þ				1	Right					
Peds		X	х	i			Peds					
NB Right						EB	Right					
SB Right						WB	Right					
Green		36.0	21.0			1	J	15.0				
Yellow		4.0	4.0					4.0				
All Red		2.0	2.0					2.0				
Cycle Leng	th: 90.		ecs									
						ormano						
Appr/ La			Sat		atios		Lane	Group	Appr	oacn		
	oup		Rate			75	en . 3	T 00	77-17-11	100	_	
Grp Ca	pacity	( :	3)	v/c	g	7ē	ретау	LOS	Delay	I'O2		
Eastbound												-
LTR 6	53	1633	2	0.3	0 0	.400	19.6	В	19.6	B		
Westbound												
-	11	102	7	0.8	9 0	.400	49.5	D				
	20	179		0.2		.400	19.0	В	39.2	Ð		
'		1.5	-				13.0	-		-		
Northbound												
LTR 2	67	160	2	0.0	5 0	.167	31.9	C	31.9	С		
Southbound												
Soucinocana												
	31	138	3	0.1	6 0	.167	33.6	C	33.6	С		

### HCS: Signalized Intersections Release 3.1c

Period: Existing AM Peak Hour N/S St: 32nd St.

E/W St: Garfield St./Woodley Rd.

		SIG	NALIZED	INTERSE	CTION S	SUMMARY				
-		bound T R	Westb L T		Nort	hbound T R		Sou L	thbound T R	
No. Lanes LGConfig Volume Lane Width RTOR Vol	1 L 29 12.0	0 1 R 275 12.0			6 4	1 0 LTR 0 14.0	i		1 0 LTR 7 21 12.0	
Duration	0.25	Area T		l other l Operat						
Phase Comb EB Left Thru Right Peds WB Left Thru Right Peds NB Right SB Right Green Yellow All Red Cycle Leng	2 4 2	P X X P P P X X X X X X 1.0 36.0 .0 4.0 .0 2.0 secs	3	NB SB EB WB	Left Thru Right Peds Left Thru Right Peds Right Right	15.0 4.0 2.0	6	7	8	
	ane roup	Intersec Adj Sat Flow Rate	Rati		Lane C		Appr	roach		
	pacity	(s)	v/c	g/C	Delay	LOS	Delay	LOS		
Eastbound L	123	529	0.29	0.233	34.3	С	51.0	D		<del></del> -
R Westbound	365	1566	0.84	0.233	52.9	D	31.0	2		
L)TR	389	1666	0.39	0.233	32.1	С	32.1	С		
Northbound	<del>1</del>									
LTR 2	282	1689	0.06	0.167	32.0	С	32.0	С		
	-1			,						
Southbound	-									
	228	1369	0.33	0.167	36.9	a	36.9	D		

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.
Analyst: LB Proj #:
Date: 8/24/00 Period: Existing PM Peak
E/W St: Garfield St./Woodley Rd. N/S St: 32nd St.

Proj #: Period: Existing PM Peak Hour N/S St: 32nd St.

			SI	GNAL I	ZED I	NTERS	ECTI	ON SI	лмма	RY				
	Eas	tbou	nd	We	estbou	nd	[ ]	North	ıbou	nď	Sc	uthbo	und	
	L	Т	R	L	T	R	l L		1	R	L	T	R	
4	l			ĺ			_1_							_
No. Lanes	1	0	1	- 7	1	0	_	0	1		_1	1	0	_
LGConfig	L		R		LTR			1	LTR			LTF	3	1
Volume	11		255	7	49	15	3	2		1	8	3	8	
Lane Width	12.0		12.0	ì	13.0		ì	14	1.0			12.0	)	]
RTOR Vol			0			0				0			0	1

Dur	ation (	0.25	Area		All of							
Pha	se Combina	stion 1	2	31	gnar or	Jerac	10118	5	6		8	
EB	Left	P .	_	•	•	NB	Left	P	•	,	•	
	Thru					'''	Thru	P				
	Right	P				ì	Right	•				
	Peds	x	х			Į	Peds					
WB	Left	P	•••			SB	Left	Ŕ				
_	Thru	₽				~~	Thru	P				
	Right	P				ĺ	Right	P				
	Peds	X	Х			<b>!</b>	Peds					
NB	Right					EB	Right					
SB	Right					WB	Right					
Gre	en	21.0	36.0		'	'	,	15.0				
Yel	low	4.0	4.0					4.0				
All	Red	2.0	2.0					2.0				
Сус	le Length:	90.0	secs									

		Intersec	tion Po	erforman	ce Summa	эгу		
Appr/ Lane	Lane Group	Adj Sat Flow Rate	Rat	ios	Lane (	Froup	Appr	oach
Grp	Capacity	(s)	v/c	g/c	Delay	LOS	Delay	LOS
Eastbou	nd							
L	162	694	0.10	0.233	28.3	С	46.1	D
R Westbou	365 nd	1566	0.78	0.233	47,1	D		_
LTR	389	1666	0.26	0.233	29.8	C	29.8	С
Northbo	und							
LTR	260	1561	0.05	0.167	31.9	C	31.9	С
Southbo	und							
LTR	233	1398	0.13	0.167	33.1	С	33.1	С
	Intersec	tion Delay	= 41.0	(sec/ve	eh) Ir	nterse	ction 1	LOS = D

# HCS: Signalized Intersections Release 3.1c

				INTERSE						
	Eastbe		Westb		Nor	thboun T			hbound T R	
No. Lanes LGConfig	F	0 1 R		1 0	0	1 LTR	0 -	Ó	1 0 LTR	
Volume Lane Width RTOR Vol	34 12.0	325 12.0 0		06 32 1.0 0		5 0 14.0 0	-		25 2.0 0	
Duration	0.25	Area 1		1 other						
Phase Combi	nation 1		Signa 3	l Operat	ions	5	6	7	8	
EB Left Thru	P	_	-	ИВ	Left Thru	P P	Ü	·	Ü	
Right Peds	P X				Right Peds					
WB Left Thru	P P			SB	Left Thru	P P				
Right Peds	P X		F		Right Peds	-				
NB Right SB Right				EB WB	Right Right					
Green Yellow	21 4.	0 4.0				15.0 4.0				
All Red Cycle Lengt	2.0 h: 90.0	0 2.0 secs				2.0				
Appr/ Lan		Intersed		rformanc						
Lane Gro		Adj Sat low Rate	Rati	.OS	Lane	Group	Appr	oacn		
	acity	(a)	v/c	g/C	Delay	LOS	Delay	LOS	_	
Eastbound L 10	5 4	450	0.40	0.233	40.2	D	<u></u>			
R 36	5 .	1566	0,99	0.233	78.8	E	74.8	E		
Westbound	•	-000	0,33	0.255	70.0	_				
LTR 38	9 :	1667	0.46	0.233	33.6	C	33.6	c		
Northbound										
LTR 27	8	1670	0.08	0.167	32.2	C	32.2	C		
Southbound										
LTR 22	6	1356	0.39	0.167	38.4	D	38.4	D		
						_	30.4	_		

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.

Analyst: LB
Date: 8/24/00
E/W St: Garfield St./Woodley Rd. Proj #: Period: 2017 No Build PM Peak Hour N/S St: 32nd St.

·		SIG	NALIZED	INTERSE	CTION S	UMMARY			
	Easth L T		Westbo L T		Nort L	hbound T R		Southb T	ound R
No. Lanes LGConfig Volume Lane Width RTOR Vol	1 L 13 12.0	0 1 R 301 12.0			3 2	1 0 LTR 2 1 14.0	9	0 1 LT 3 12	10
Duration	0.25	Area T		l other l Operat					
Phase Combi EB Left Thru Right Peds WB Left Thru	ination I	x	3	A NB	Left Thru Right Peds Left Thru		6	7	В
Right Peds NB Right SB Right Green Yellow All Red	21 4. 2.	X X0 36.0 0 4.0 0 2.0		EB WB	Right Peds Right Right				
Appr/ Lar	ne .	secs _Intersec Adj Sat Ylow Rate	tion Pe Ratio		e Summa Lane (		Appro	oach	
	oup E pacity		v/c	g/C	Delay	LOS	Delay	LOS	
Eastbound L 1	47	628	0.13	0.233	29.1	С	61.6	E	
R 3 Westbound	65	1566	0.92	0.233	63.5	Ε	01.0	_	
LTR 3	88	1664	0.31	0.233	30.7	C	30.7	С	
Northbound									
LTR 2	60	1558	0.05	0.167	31.9	С	31.9	С	
Southbound									
LTR 2	31	1388	0.16	0.167	33.6	С	33.6	С	
Iı	ntersecti	on Delay	= 51.7	(sec/ve	h) I	ntersec	tion 1	LOS = D	

HCS: Signalized Intersections Release 3.1c

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.

Analyst: LB Proj #:
Period: 2017 Build AM Peak Hour
E/W St: Garfield St./Woodley Rd. N/S St: 32nd St.

:		\$161	NALIZED	INTERSE	TION S	SUMMARY	r			
	Eastl	oound	Westbo	ound	Nort	hbound		Sout	hboun	
	L 1	r R	L T	R	L	T F	٤	L	T	R
No. Lanes	1	0 1	0 1	. 0	- 0	1 0	<del></del>  -	0	1	0
LGConfig	Ĺ	R	LT		_	LTR			LTR	ļ
Vdlume	34	320	96	32	7 9	5 0	2	0.8	3 2	5
Lane Width	1 12.0	12.0	13.	. 0		14.0		2	.2.0	1
RTOR Vol		0 \		0	ł	0	1		O	1
Duration	0.25	Area T		other a						
Phase Comb	pination	1 2	_3*9	4 )		5	6	7	8	
EB Left		p	-	NB	Left	P·				
Thru					Thru	P				
Right		₽			Right					
Peds		X X			Peds	_				
WB Left		P		SB	Left	P				
Thru		P		- 1	Thru	P P				
Right Peds		P X X		Y	Right Peds	r				
NB Right		. <i>.</i>		EB	Right					
SB Right				WB	Right					-
Green	2	1.0 36.0		,		15.0				
Yellow	4	.0 4.0				4.0				
All Red		.0 2.0				2.0				
Cycle Leng	gth: 90.0				_					
Appr/ La	ane	Intersect Adi Sat	tion Per Ratio		e Summa Lane (		Appl	roach		
		Flow Rate	Racio	) <b>3</b>	Lane	Group	Appi	Oacn		
	apacity	(s)	v/c	g/c	Delay	LOS	Delay	LOS	_	
Eastbound L	113	484	0.37	0.233	38.1	Ð				
							71.6	E		
	365	1566	0.98	0.233	75.5	E				
Westbound										
LTR :	388	1662	0.43	0.233	32.9	С	32.9	С		
	,									
Northbound	u									
LTR 2	278	1670	0.08	0.167	32.2	C	32.2	C		
Squthbound	đ									
LTR 2	226	1356	.0.39	0.167	38.4	۵	38.4	D		
		ion Delay	F. 6. 4					LOS	_	

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.

Proj #: Period: 2017 Build PM Peak Hour N/S St: 32nd St.

Analyst: LB
Date: 8/24/00
E/W St: Garfield St./Woodley Rd.

		SIGNALIZE	D INTERSE	CTION SUMMA	RY			
	Eastbound		bound	Northbou		South	bound	
	LTR	r.	r R	L T	R		? Ř	
No. Lanes	1 0 1	D	1 0	0 1	<del></del> 1-	0	1 0	1
LGConfig	L R	I .	LTR	LTR	·	-	.TR	į
Volume	13 287	B 5		3 2	1 9	9 3	10	1
Lane Width	12.0 12.		3.0	14.0	-  -		0 10	
RTOR Vol	0		0	1	0		```a	
Duration	0.25			·				
		Type: A Sign	ll Otner al Operat					
Phase Combin	nation 1 2	3	4 ]	5	6	7	8	
EB Left	Þ		ИВ	Left P				
Thru			1	Thru P				
Right	P		i	Right				
Peds	X X			Peds				
WB Left	P		SB	Left P				
Thru	P		1	Thru P				
Right	P		i	Right P				
Peds	х х		1	Peds				
NB Right			EB	Right				
SB Right			WB	Right				
Green	21.0 36	. 0		15.0				
Yellow	4.0 4.	)		4.0				
All Red	2.0 2.1	)		2.0				
Cycle Lengti	1: 90.0 sec	3		2.0				
•		section Pe	erformanc	e Summary				
Appr/ Lane	Adj Sa	Rat		Lane Group	Annz	oach	•	
Lane Grou			.02	name oroup	rppr	Oach		
	city (s)	v/c	9/C	Delay LOS	Delay	TOC		
				beray bos	Detay	100		
Eastbound								
L 154	662	0.12	0.233	28.9 C				
_					55.7	E		
R 365	1566	0.87	0.233	57.2 E				
Westbound								
LTR 38'	7 1658	0.29	0.233	30.2 C	30.2	С		
Northbound								
LTR 260	1558	0.05	0.167	31.9 C	31.9	C		
Southbound								
I.TR 221	1389	0.16	0 367	22 6 6	22 -	~		
LTR 231	. 1388 ersection Dela	0.16	0.167	33.6 C	33.6	C		

### HCS: Signalized Intersections Release 3.1c

Inter: Cleveland Ave. & Garfield St.
Analyst: LB
Date: 8/24/00
E/W St: Garfield St./Woodley Rd.

City/St: Washington D.C.
Proj #:
Period: 2017 Build AM Peak w Mitigatio
N/S St: 32nd St.

	,		11,7	oc. sena at	••	
<del></del>	To a series	SIGNALI		CTION SUMMAR		
	Eastbound L T	R L	atbound T R	Northbour L T	R L	uthbound T R
No. Lanes LGConfig Volume Lane Width RTOR Vol	12.0	1 0 R 318 5 12.0	1 0 LTR 92 32 13.0	0 1 LTR 7 5 0 14.0	i	1 0 LTR 8 25 12.0
Duration	0.25		All other			
Phase Combi	nation 1	2 3	gnal Operat 4 i	ions5	6 7	<u> </u>
EB Left Thru Right	P P	2 3	ИВ		· ·	6
Peds WB Left Thru	X P P	х	SB	Peds Left P Thru P		
Right Peds NB Right SB Right	P X	х	EB	Right P Peds Right Right		
Green Yellow All Red Cycle Length	21.0 4.0 2.0 n: 90.0	36.0 4.0 2.0 secs	·	15.0 4.0 2.0		
3	Int	tersection	Performanc	e Summary		
Appr/ Land Lane Gro		Sat Ra Rate	atios	Lane Group	Approac	h
		s) v/c	g/C	Delay LOS	Delay LO	<u>s</u>
Eastbound L 11	5 499	0.36	6 0.233	37.4 D		<del></del>
R 369 Westbound	5 1566	5 0.97	7 0.233	73.7 E	69.8 E	
LTR 38	7 1660	0.42	2 0.233	32.7 C	32.7 C	
Northbound						
LTR 278	3 1670	30.0	8 0.167	32.2 C	32.2 C	
Southbound			•			
LTR 226	1356	5 0.39	9 0.167	38.4 D	38.4 D	
Int	ersection I	Delay = 55.	.4 (sec/ve	h) Interse	ction LOS	= E

Period: 2017 Build PM Peak w Mitigatio

Date: 8/24/00 E/W St: Garfield St./Woodley Rd. N/S St: 32nd St.

		SIG	NALIZED	INTERSE	CTION S	SUMMAR	Y			
		bound	Westb			thbound			thbound	$\neg \top$
	Ŀ	TR	L T	R :	P	T I	₹	L	T R	
No. Lanes	1	0 i		1 0	0	_	)	0	1 0	
LGConfig	L	R		rr		LTR	1		LTR	1
Volume	13		8 48			2 <b>1</b>			3 10	
Lane Width	12.0	12.0	13		;	14.0			12.0	
RTOR Vol	ì	0		0	ŧ	0	1			_
Duration	0.25			l other l Operat						
Phase Combi	nation		3	4		5	6	7	8	
EB Left		P		NB		P P				
Thru		P			Thru Right	-				
Right Peds		X X		1	Peds					
WB Left		P		SB	Left	₽				
Thru		P		1 55	Thru	P				
Right		P		- 1	Right	P				
Peds		X X I			Peds					
NB Right				EB	Right					
SB Right				WB	Right					
Green	_	1.0 36.0				15.0				
Yellow		.0 4.0 .0 2.0				4.0				
All Red Cycle Lengt						2.0				
cycle benge	50.0	Intersec	tion Pe	rformanc	e Summa	ary				
Appr/ Lan	e	Adj Sat	Ratio			Group	App	roach	_	
Lane Gro		Flow Rate								
Grp Cap	acity	(s)	v/c	g/C	Delay	LOS	Dela	y LOS		
Eastbound										
L 15	8	676	0.12	0.233	28.8	C	53.6	D		
R 36	5	1566	0.86	0.233	55.1	E		_		
Westbound										
LTR 38	6	1655	0.28	0.233	30.1	C	30.1	C		
Northbound										
LTR 26	0.	1558	0.05	0.167	31.9	C	31.9	C		
Southbound										
LTR 23	1	1388	0.16	0.167	33.6	С	33.6	С		
In	tersect	ion Delay	= 46.4	(sec/ve	h) I:	nterse	ction	LOS	= D	

### HCS: Signalized Intersections Release 3.2

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C.

Analyst: LB

Proj #: JA-2249

Date: 8/23/00 E/W St: Porter St

Period: 2017 Scenario 3 AM Peak Hour N/S St: Connecticut Ave.

E/W St:	Porter St			N/S	St: Co	nnect	icut A	ve,		
		SIG	NALIZED	INTERSE	CTION S	UMMARY	Y			
	TER	tbound	Westb			hbound		Sout	hbound	
	L	T R	L T						T R	
	1 5	- K	Ti 1	К	1 "	1 ,	`	_	1 1	Ì
No. Lane	9 0	1 0	1	1 1	0	2 (	<del></del> }-	ō	4 0	
LGConfig		LTR	LT	R		LTR			LTR	l
Volume	17	486 57	140 34		1	57 91	n 12		893 38	.
Lane Wid		12.0		.0 10.0		0.0		_	0.0	
RTOR Vol		0	10.0 10	0	*	0.0	\	_	0	ļ
Duration	0.25	Area T	ype: Al	l other	areas					
				1 Operat	ions					
	mbination		3	4		5	6	7	8	
EB Left		P		NB	Left		P			
Thru		Р		1	Thru		₽			
Righ	it	₽			Right		P			
Peds	}	X			Peds		Х			
WB Left		P		SB	Left	P				
Thru	l	P			Thru	P	P			
Righ	t	p		ł	Right	₽	₽			
Peds		X		ì	Peds	X	Х			
NB Righ				EB	Right	•-				
SB Righ				WB	Right					
Green		26.0		1 112		27.0	27.0			
Yellow		4.0				_ ,	4.0			
						0.0	1.0			
All Red		1.0				0.0	1.0			
chore re	ngth: 90.	<ol> <li>secs</li> <li>Intersect</li> </ol>	tion Pe	rformanc	e Summa	rv.				
Appr/	Lane	Adi Sat	Rati		Lane G		Appr	oach		
	Group	Flow Rate								
	Capacity		v/c	g/C	Delay	LOS	Delay	Los	_	
Eastbour										
E49CDOM.	i.c.									
LTR	374	1295	1,78	0.289	395.2	F	395.2	F		
Wéstboun	ıd									
L	80	265	2.50	0.289	742.6	F				
T	497	1722	0.77	0.289	40.0	D	199.1	F		
R	418	1447	0.72	0.289	38.8	D G		•		
Northbou		1447	0.72	V.205	30.0					
						_		_		
LTR	967	3224	0.89	0.300	42.0	D	42.0	D		
Southbou	ınd									
LTR	3698	6164	0.92	0.600	20.9	¢	20.9	C		
	Intersec	tion Delay	= 94.1	(sec/ve	h) In	terse	ction	LOS =	F	

Inter: Connecticut Ave. & Porter St. City/St: Washington D.C. Analyst: LB Proj #: JA-2249

Proj #: JA-2249 Period: 2017 Scenario 3 PM Peak Hour

Date: 8/23/00 E/W St: Porter St. N/S St: Connecticut Ave.

	<del> </del>			INTERSE						
	Eas L	tbound T R	Westb L T		L	hbour T	id R	Sou!	thbound T R	
No. Lane		1 0	1 L T	1 1 R	1-0	4 LTR	0 -	0	2 0	-
Volume	32	411 26	118 30		1,4 ,	ык 1610-1	17 1	.4		
Lane Wic		12.0		.0 10.0			1 1		518 32	Ì
RTOR Vol			10.0 10		1 4	0.0			10.0	ĺ
KIOK VOI	· '	0	<b>!</b>	0	1	0	' '		0	ı
Duration	0.25	Area		l other l Operat						
Phase Co	ombination	1 2	3	4		5	6	7	8	
EB Left	;	P		NB	Left		Þ		_	
Thru	ı	P		-	Thru		P			
Righ	nt	P		i	Right		P			
Peds	3	X			Peds		X			
WB Left	:	P		SB	Left	P				
Thru	1	P		_	Thru	P	P			
Riah	nt	p			Right	P	P			
Peds	3	x		ı	Peds	x	x			
NB Righ	nt			EB	Right		-			
SB Righ				WB	Right					
Green		25.0		1		16.0	39.0			
Yellow		4.0					4.0			
All Red		1.0				0.0	1.0			
Cycle Le	ength: 90.									
-,			ation Pe	rformanc	e Summa	rv				
Appr/	Lane	Adj Sat	Rati		Lane G		Appr	oach		
	Group	Flow Rate			Dance C	, LOUP	pp.			
	Capacity	(8)	v/c	q/C	Delay	ios	Delay	1.05	_	
•	_	,,,,	., -	5, 4	Delay	200	2010,			
Eastboun	nd									
LTR	286	1031	1.95	0.278	473.0	F	473.0	F		
Westboun	ıd									
Ţ	80	275	1.77	0.278	426.8	F				
T	478	1722	0.76	0.278	40.7	D	125.2	. F		
R	402	1447	0.31	0.278	27.7	C				
Northbou	ind									
LTR	2497	5763	0.78	0.433	24.3	C	24.3	C		
Southbou	ınd									
LTR	1997	3268	0.36	0.611	9.2	Α.	9.2	A		
	Intersec	tion Delay	= 103.2	(sec/ve	h) In	terse	ction	LOS =	- F	

### HCS: Signalized Intersections Release 3.2

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.
Analyst: LB Proj #:

Proj #: Period: 2017 Scenario 3 AM Peak Hour N/S St: 32nd St.

Date: 8/24/00 E/W St: Cleveland Ave.

					CTION SUMM			
	L Eas	atbound R	Westb		Northbo L T	und R	Southbo L T	R R
No. Lane LGConfig Volume Lane Wid	0	1 0 LTR 722 19	138 73	_	0 1 LTR 7 5	0	0 1 LTR 20 8	25
RTOR Vol		16,0 0	11.0 11	0	15.0	0	12.0	0
Duration	0.25	Area		l other				
Phase Co	mbination	n 1 2		l Operat 4	10ns	- 6	7	8
EB Left		p	_	¹ NB	Left P		•	·
Thru		P		]	Thru P			
Righ	t	p			Right P			
Peds		х х			Peds X			
WB Left		P		l sa	Left P			
Thru		P			Thru P			
Righ	t	P		1	Right P			
Peds		х х	ţ		Peds X			
NB Righ	t			EB	Right			
SB Righ	t			WB	Right			
Green		36.0 21.0		,	15.	0		
Yellow		4.0 4.0			4.0			
All Red		2.0 2.0			2.0			
Cycle Le	ngth: 90.							
		Interse	ction Pe	rformanc	e Summary			
	Lane	Adj Sat	Rati	os	Lane Grou	p Apr	roach	
	Group	Flow Rate						
Grp (	Capacity	(a)	v/c	g/C	Delay LOS	Dela	LOS	
Eastboun	d							
LTR	656	1640 .	1.25	0.400	153.8 F	153.	8 F	
Westbound	d							
L	94	235	1.83	0.400	438.7 F			
TR	713	1783	0.14	0.400	17.5 B	286.	8 F	
Northbou	nd							
LTR	287	1722	0.08	0.167	32.2 C	32.2	c c	
Southbou	nd							
LTR	226	1356	0.39	0.167	38.4 D	38.4	D D	
	Intersec	tion Delay	= 172.9	(sec/ve	h) Inter	section	LOS = F	

SIGNALIZED INTERSECTION SUMMARY

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.

Analyst: LB Proj #:

Date: 8/24/00

Period: 2017 Scenario 3 PM Peak Hour N/S St: 32nd St.

E/W St: Cleveland Ave.

LTR

231

		SI	GNALIZE	O INTERSE						
	Eas	stbound	Westl	oound	Nort	hbour	ıd T	Sout	nbound	i
	L	T R	L :	r R	L	Т	R	L ?	r R	
No. Lane	s - 0	1 0	1	1 0	0	1	0	0	1 0	_
LGConfig		LTR		rr	<b>\</b>	LTR	1		LTR	ì
Volume	0	159 9		02 1		2 ]	L }	93	10	1
Lane Wid	th	16.0	11.0 1	1.0	] 1	15.0		1:	2.0	
RTOR Vol		0	J	0	1	(	)		0	Í
Duration	0.25	λrea		llother						
	<del></del>			al Operat	ions	5	6	7	- 8	
	mbination		3	4   ,,,,		P	6	,	0	
EB Left		P		NB	Left	P				
Thru		P		<b>\</b>	Thru					
Righ		P		1	Right	P				
Peds		X X			Peds	_				
WB Left		P		SB	Left	P				
Thru		₽		1	Thru	P				
Righ		P		į	Right	P				
Peds		X X		\	Peds					
NB Righ				EB	Right					
SB Righ	it			WB	Right					
Green		36.0 21.0				15.0				
Yellow		4.0 4.0				4.0				
All Red		2.0 2.0				2.0				
Cycle Le	ngth: 90				_					
				erformanc						
	Lane	Adj Sat	Rat	ios	Lane (	3roup	App	roach		
	Group	Flow Rate							_	
Grp	Capacity	(s)	v/c	<del>g/</del> C	Delay	LOS	Dela	y Los		
Eastboun	d									
LTR	653	1632	0.32	0.400	19.9	В	19.9	В		
Westboun						_				
L	399	997	0.92	0.400	54.4	D		_		
TR	720	1800	0.35	0.400	20.2	С	40.5	D		
Northbou	ınd									
LTR	269	1611	0.05	0.167	31.8	С	31.8	C		
Southbou	ınd									

0.16

0.167 33.6 C

Intersection Delay = 35.1 (sec/veh) Intersection LOS = D

33.6 C

HCS: Signalized Intersections Release 3.2

Inter: Cleveland Ave. & Garfield St. City/St: Washington D.C.

Analyst: LB

Proj #:

Date: 8/24/00

Period: 2017 Scenario 3 AM Peak Hour

E/W St: Garfield St./Woodley Rd.

N/S St: 32nd St.

			SIG	NALIZ	ED I	NTERSE	CTION	SUMMA:	RY				
		tboun	id	Wes	tbou	nd	Nor	thbou		Sot	ithbo T	und R	
	L	T	R	L	Т	R	L	T	R	ь	ľ		_}
No. Lanes LGConfig	1 1	ō	1 R	0	1 LTR	0	D	1 LTR	0	0	1 LTR	0	_{}
Volume	34		325	5	96	32	7		0	20	8	25	
Lane Width	12.0		12.0	-	13.0		1	14.0	•		12.0		1
RTOR Vol	1		0			0	1		0			0	
Duration	0.25		Area T			other Operat			<del></del>				
Phase Comb	ination	1	2	$-3^{19}$	11101 4		10118	5	6	7		8	
EB Left		P				NB	Left	₽					
Thru						İ	Thru	₽					
Right		P					Right	:					
Peds		Х	Х				Peds						
WB Left		Ь				SB	Left	-					
Thru		P				ŀ	Thru						
Right		P				Į	Right						
Peds		Х	Х			1	Peds						
NR Right						EB WB	Right						
SB Right		21.0	36.0			i MB	Right	15.0					
Green Yellow		4.0	4.0					4.0					
All Red		2.0	2.0					2.0					
Cycle Lengt			secs					2.0					
clere nema			itersed	tion	Perf	ormanic	c Summ	nary					
Appr/ Lan	ne		Sat		tios			Group	App	roaci	า		
	oup		v Rate					•					
	pacity	(	(s)	v7c	9	7 <b>c</b>	Delay	/ LOS	Dela	y LOS	3		
Eastbound			····										
	13	484	ł	0.37	0	.233	38.1	Ð		_			
			٠		_		70.0	_	74.6	E			
	55	156	<b>,</b> 6	0.99	. 0	.233	78.8	Е					
Westbound													
LTR 38	88	166	52	0.43	. 0	.233	32.9	С	32.9	C			
Northbound													
										_			
LTR 2	78	167	/0	0.08	0	.167	32.2	C	32.2	C			
Southbound													
LTR 22	26	139	66	0.39	0	.167	38.4	D	38.4	Œ			
Ir	ntersec	tion	Delay	= 58.	3 (	sec/ve	h) 1	nters	ection	LOS	= E		

Date: 8/24/00

No. Lanes

LGConfig

RTOR Vol

Lane Width

Volume

Period: 2017 Scenario 3 PM Peak Hour N/S St: 32nd St.

0

E/W St: Garfield St./Woodley Rd.

T

13

12.0

SIGNALIZED INTERSECTION SUMMARY Southbound Northbound Eastbound Westbound Т R T R L T 0 1 0 1 1 R LTR LTR LTR 3 10 287 58 18 2 1 14.0 13.0 12.0 12.0

Jur	ation 0	. 25	Area T			ther perat						
Dha	se Combina	tion 1	2	—31911	4	perac	10119	5		7	<del>-</del> -	_
EB.	Left	P	-	-	-	NB	Left	Þ	-			
	Thru	L				1	Thru	P				
	Right	P				1	Right					
	Peds	x	Х			}	Peds					
В	Left	P				SB	Left	P				
_	Thru	P					Thru	P				
	Right	Р				]	Right	P				
	Peds	х	Х			1	Peds					
ΙB	Right					EB	Right					
зв	Right					WB	Right					
ire	en	21.0	36.0					15.0				
(el	low	4.0	4.0					4.0				
111	Red	2.0	2.0					2.0				
'yc	le Length:	90.0	secs									

	Intersec	tion Pe	rforman	ce Summa	ary		_	
Lane	Adj Sat	Rati	.os	Lane (	Group	Appro	oach	
Capacity	Flow Rate	v/c	g/c	Delay	LOS	Delay	LOS	
ind								
147	628	0.13	0.233	29.1	С	cc 7	-	
365	1566	0.87	0.233	57.2	E	55.7	E	
ınd						•		
388	1664	0.31	0.233	30.7	С	30.7	С	
				****	_		_	
ound								
261	1568	0.05	0.167	31.9	C	31.9	C	
u na								
Junu								
231	1388	0.16	0.167	33.6	C	33.6	С	
Intersec	tion Delay	= 47.5	(sec/v	eh) Iı	nterse	ction :	LOS = D	1
	Group Capacity and 147 365 and 388 bund 261 bund 231	Lane Adj Sat Flow Rate Croup Flow Rate (s) and 147 628 365 1566 and 388 1664 and 261 1568 and 251 1388	Lane   Adj Sat   Ratif Group   Flow Rate   V/C	Lane Group Flow Rate Group Flow Rate Capacity (s)   V/C   g/C	Lane Group Flow Rate Capacity (s) 7/C 9/C Delay and 147 628 0.13 0.233 29.1 365 1566 0.87 0.233 57.2 and 388 1664 0.31 0.233 30.7 and 261 1568 0.05 0.167 31.9 and 231 1388 0.16 0.167 33.6	Croup Capacity Flow Rate (s)	Lane Group   Appropriate   Flow Rate   Capacity   (s)	Lane Group   Adj Sat Group   Approach Group   Flow Rate Group   Approach

#### HCS: Signalized Intersections Release 3.2

Inter: 34th Street & Woodley Road

City/St: Washington D.C. Proj #: JA-2249

Analyst: LB

Period: 2017 Scenario 3 AM Peak Hour N/S St: 34th Street

Date: 8/17/00 E/W St: Woodley Road

			S	GNAL:	IZED I	NTERS	ECTIO	ON S	MMU	ARY			
	Ea	stbou	nd	We	estbou	nd	1	lort	hbo	und	Sou	ithbo	und
	L	Ţ	R	{ъ	T	R	L		T	R	Ĺ	T	R
•	!						٠						
No. Lanes	0	1_	0	-	) 1	0	7	0	2	0	0	1	0 [
LGConfig		LTR		1	LTR		1		LTR			TR	
Volume	14	20	307	1	258	0	34	5	343	2		1126	21
Lane Width		14.0			10.0		1	1	0.0			13.0	- 1
RTOR Vol	ł		0			0				0			0

Dura	stion	0.25	Area		All o							
Phas	se Combi	nation 1	2	3	4	1		5	6	7	8	
EВ	Left	P				NB	Left	P				
	Thru	P				1	Thru	P				
	Right	Р				i	Right					
	Peds	Х				t	Peds	Х				
WΒ	Left	P				l sв	Left	P				
	Thru	P				1	Thru	P				
	Right	P				ı	Right					
	Peda	Х					Peds	Х				
ИB	Right					EB	Right					
SB	Right					WB	Right					
Gree	en -	19.0				•	-	59.0				
Yel!	Low	4.0						4.0				
All	Red	2.0						2.0				
Cvc]	le Lenat	h: 90.0	secs									

Appr/ Lane	Lane	Adj Sat Flow Rate		os	Lane G	roup	Appro	oach
Grp		(s)	v/c	g/c ·	Delay	LOS	Delay	LOS
Eastbou	und	<del>-</del>						
LTR	275	1304	1.53	0.211	293.6	F	,293.6	F
Westbou	ınd							
LTR	369	1748	0.79	0.211	49.2	D	49.2	D
Northbo	ound							
LTR	1318	2011	0.50	0.656	9.3	Α	9.3	A
Southbo	ound							
TR	1111	1695	1.09	0.656	69.5	E	69.5	Е
	Intersec	tion Delay	= 88.6	(sec/v	eh) In	terse	ction 1	LOS = F

Inter: 34th Street & Woodley Road Analyst: LB Date: 8/17/00 E/W St: Woodley Road

City/St: Washington D.C. Proj #: JA-2249 Period: 2017 Scenario 3 PM Peak Hour N/S St: 34th Street

		SIG	NALIZED	INTERSE	CTION S	SUMMAR'	Y		
	East	bound T k	Westb L T		Nort	hbound T	d R	South L T	bound R
No. Lanes LGConfig Volume Lane Width RTOR Vol	35 3	1 0 LTR 305 82 14.0	1 0	1 0 TR 0			0	22	1 0 R 4 0
Duration	0.25	Area T		lother			<u> </u>		<u> </u>
Phase Comb EB Left Thru Right Peds WB Left Thru Right Peds NB Right SB Right Green Yellow All Red Cycle Leng	3 4 2	P P P P P X X		1 Operat 4   NB   SB	Left Thru Right Peds Left Thru Right Peds Right Right	5 P P X P P X	6	7	8
	ane	intersec Adj Sat	tion Pe Rati		e Summa Lane G		Appr	oach	
Lane Gr	roup apacity	Flow Rate (s)	v/c	g/c	Delay	•			
Eastbound									
LTR 4	48	1613	1.13	0.278	116.2	F	116.2	F	
Westbound									
LTR 3	383	1378	0.01	0.278	23.6	С	23.6	С	
Northbound	i i								
LTR 1	1577	2678	0.87	0.589	22.1	С	22.1	C	
Southbound	i								
TR 1	1134	1925	0.21	0.589	9.1	A	9.1	A	
1	Intersect	ion Delay	= 43.3	(sec/ve	h) Ir	nterse	ction	LOS =	D

İ	HCS: Unsig	gnal.	ized Int	ersection	s Rel	ease :	3.2	
i	TWO	-WAY	STOP CO	NTROL SUN	MARY			
Intersection:			Rd. & 32					
Analyst:	1ь							
Project No.: Date:								Szam
East/West Street North/South Stre								
Intersection Ori		คพ		9	udy p	boira	(hre)	: 0.25
incerpedential off	ichederon. 1				Ludy p	criou	(111.0)	. 0.23
	Vehic	cle '	Volumes	and Adjus	stment	8		
Major Street: A	Approach		Eastbou				tbound	
<b>5</b>	Movement	1	2	3	4		5	6
		L	T	R	L		T	R
Volume			1	84	0		263	<del></del>
Hourly Flow Rate	. HFR		4	139	ō		328	
Percent Heavy Ve			:-		ā			
Median Type	Undi	vide	d		_			
RT Channelized?								
Lanes			1	0		0	1	
Configuration				TR		LT		
Upstream Signal?	?		No				No	
Minor Street: 7	Approach		Northbo	und		Sou	hboun	<u>d</u>
	Novement	7	8	9	1	0	11	12
		L	T	Ŕ	L		T	R
Volume		2		0				
	. 1100	4		0				
Hourly Flow Rate Percent Heavy Ve		0		Ö				
Percent Grade (%		•	0	Ü			0	
Median Storage	· 1		Ū				•	
Flared Approach:			No	-				
	Storage							
RT Channelized?	=							
Lanes			0	0				
Configuration			LR					
-+	<del></del> ,							
Anneach	Delay, Qu EB	ueue WB		and Leve Jorthbound		Servi		hbound
Approach Movement	1	₩B	1 7	B B	9	1 1		11 12
Lane Config	1	LT	1 '	LR	7	1 1	•	1. +4
and courtain		.,1		-IX		1		
v (vph)		0		4	•			
C(m) (vph)		145		608				
V/C		0.0		0.01				
95% queue length	1	7.5		0.00 11.0				
Control Delay LOS		/.5 A		11.0 B				
Approach Delay		a		11.0				
Approach LOS				B B				

HCS: Unsignalized Intersections Release 3.2

Intersection:	Wood	ilev i	STOP CO Rd. & 32	nd St	אזישישיוטק	·			
Analyst: Project No.:	16	iley i	.u. æ 32	nu st.				5	s Pm
Date:									
East/West Street									
North/South Stre Intersection Ori		CHA			a. 1				
incersection or	entation:	EW			study	period	(hrs):	0.25	
	Veh	icle V	Volumes	and Ada	nstme	nte			
Major Street: A	pproach		Eastbou		Doctio		bound		
	lovement	1	2	3	ŧ	4	5	6	
		L	T	R		L	T	R	
Volume									
Hourly Flow Rate	, upp		302			0	5		
Percent Heavy Ve			377	68		0	9		
Median Type		ivideo				U			
RT Channelized?	Ond:	. v Luci	•						
Lanes			1	0		0	1		
Configuration				TR		LT	-		
Upstream Signal?	1		No				No		
Minor Street: A	pproach		Northbo	und		- 500	hbound		
	lovement	7	8	9	1	10	11	12	
•		Ĺ	Ť	Ŕ		L	т	R	
		_	•	•	'	-	•		
Volume		2		0					
Hourly Flow Rate		4		0					
Percent Heavy Ve Percent Grade (9		0	_	0					
Median Storage	1		0				0		
Flared Approach:			No						
. rarow inpercuent	Storage		140						
RT Channelized?									
Lanes .			0	0					
Configuration			LR						
	Delay, C	)ueue	Length,	and Le	vel of	Servi	:e		
Approach	EB	MB		orthbou			South	oound	
Movement	1	4	7	8	9	10	) 1:	1 1	2
Lane Config		LT	1	LR		!			
v (vph)		0		4					
(m) (vph)		1126		594					
v/c		0.00		0.01					
95% queue length	ı	0.00	)	0.00					
Control Delay		8.2		11.1					
LOS		Α		В					
Approach Delay Approach LOS				. 11.1					
				В					

HCS: Unsignalized Intersections Release 3.2

# HCS: Unsignalized Intersections Release 3.2

Phone: E-Mail:			Fax:	
	_ALL-WAY STO	OP CONTROL(AWSC)	ANALYSIS	
Intersection: City/State:	Woodley	Rd. & Klingle Rd		
Analyst: Project No.:	LB			
Time period Analy: Date:	zed: Scenario	3 AM Peak		
East/West Street: North/South Stree:	t;			
Workshee	t 2 - Volume	Adjustments and	Site Characteri	stics
East L	tbound T R I	Westbound T R L	Northbound T R	Southbound L T R
Volume 0	7 0 0	0 260 0	3 0 1	0 0
	Eastbound	Westbound	Northbound	Southbound
	rı rs	L1 L2	L1 L2	L1 L2
Configuration PHF Flow Rate	T 0.50	R 0.80	T 0.75	L 0.25
% Heavy Veh	14 0	324 0	4 0	<b>4</b> 0
No. Lanes	1	1	1	1
Opposing-Lanes	ì	î	1	i
Conflicting-lanes		î	i	1
Geometry group Duration, T 0.25	1	ĩ	i	î
Workshe	eet 3 - Satur	ation Headway Ad	justment Worksh	eet
	Eastbound	Westbound	Northbound	Southbound
	L1 L2	L1 L2	L1 L2	L1 L2
Flow Rates:				
Total in Lane	14	324	4	4
Left-Turn	D	0	0	4
Right-Turn	0	324	ŏ	ó
Prop. Left-Turns	0.0	0.0	0.0	1.0
Prop. Right-Turns	0.0	1.0	0.0	0.0
Prop. Heavy Vehicl		0.0	0.0	0.0
Geometry Group	1	1	1 .	1
Adjustments Table				
hLT-adj hRT-adi	0.2	0.2	0.2	0.2
unt au	-0.6	-0.6	-0 <b>6</b>	-n 6

hHV-adj	:	1.7		1.7		1.7		1.7
hadj, computed	0.0		-0.6		0.0		0.2	
Wor	ksheet	4 - Depa	rture	Headway a	and Serv	vice Tim	e	
	East	bound	West:	bound	North	oound	South	bnuoc
	1,1	L2	L1	L2	L1	L2	L1	L2
Flow rate	14		324		4		4	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.01		0.29		0.00		0.00	
hd, final value	4.16		3.33		4.49		4.69	
x, final value	0.02		0.30		0.00		0.01	
Move-up time, m	:	2.0		2.0	1	2.0	:	2.0
Service Time	2.2		1.3		2.5		2.7	
	East	5 - Capa bound	West	bound	North	oound	South	
	L1	L2	Ll	L2	L1	L2	Lı	L2
flow Rate	14		324		4		4	
Service Time	2.2		1.3		2.5		2.7	
Utilization, x	0.02		0.30		0.00		0.01	
Dep. headway, hd	4.16		3.33		4.49		4.69	
Capacity	264		574		254		254	
Delay	7.23		7.75		7.51		7.71	
LOS	Λ		Α		A		A	
Approach:								
Delay		7.23		7.75		7.51		7.71
LOS		A		Α .	_	7	4	A
Intersection Delay	7.73		Int	ersection	1 LOS A			

Phone: E-Mail:			Fax:	
	ALL-WAY STOP	CONTROL (AWS)	C) ANALYSIS	
Intersection: city/State: Analyst: Project No.: Time period Analyze Date:	LB	d. & Klingle 3 PM Peak	Rd.	
East/West Street: North/South Street:				
			. 1. 0	
Worksheet	2 Volume A	djustments a	nd Site Characte	ristics
Eastb		estbound	Northbound	Southbound
L T	R ) L	T R	LTR	L T R
Volume 0 6 Thrus Left Lane	0 0	0 2	0 3 0	302 0 0
	Eastbound L1 L2	Westbound L1 L3		
PHF Flow Rate % Heavy Veh No. Lanes Opposing-Lanes	T 0.50 12 0	R 0.50 4 0	T 0.75 4 0	L 0.80 377 0 1
Conflicting-lanes Geometry group Duration, T 0.25	1 1 hrs.	1	1	1
Workshee	t 3 - Saturai	tion Headway	Adjustment Work	sheet
	Eastbound L1 L2	Westbound L1 L2		
Left-Turn Right-Turn Prop. Left-Turns	1	4 0 4 0.0 1.0 0.0 1	4 0 0 0.0 0.0 0.0 0.0 1	377 377 0 1.0 0.0 0.0

Transportation
Study
D-3: Tables and
Figures

TABLE 1
TRIP SHARE PERCENTAGE CALCULATION (BASED ON 2000 TRAFFIC VOLUMES)

AM Peak Period (7:00 - 9:30) PM Peak Period (4:00 - 6:30)								
	AM Pe	ak Peric	pa (7:00	- 9:30)	PM Pea	ak Peric	od (4:00	- 6:30)
	EASTB	OUND	WESTE	BOUND	EASTB	OUND	WESTE	OUND
Roadways	Volume	Weight	Volume	Weight	Volume	Weight	Volume	Weight
Porter Street	1687	1	1687	1	2033	1	1901	1
Cleveland Avenue	1325	0.5	546	0.5	557	0.5	1125	0.5
Woodley Road	167	0.5	167	0.5	245	0.5	221	0.5
Cathedral Avenue	167	0.5	167	0.5	245	0.5	221	0.5
South Alternatives Subtotal	1659		880		1047		1567	
Weighed South Alternatives Total	830		440		524		784	
Weighed Total	2517		2127		2557		2685	
			Trip	Share	Percent	age		
Porter Street	67	%	79	%	80	%	71	%
Cleveland Avenue	26	%	13	%	11	%	21%	
Woodley Road	49	4% 4%		59	%	49	%	
Cathedral Avenue	39	%	49	%	49	%	49	%

TABLE 2
TRAFFIC DIVERTION FOR SCENARIO 1: KLINGLE ROAD REOPENS WITH PREVIOUS ROAD CONDITION

	AM Pea	ak Hour	PM Peak Hour			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND		
Peak Hour Volumes on Klingle Road	136	258	284	184		
Diverted from Porter Street	91	205	226	130		
Diverted from Cleveland Avenue	36	33	31	39		
Diverted from Woodley Road	5	10	14	7		
Diverted from Cathedral Avenue	4	10	13	7		

TABLE 3
TRAFFIC DIVERTION FOR SCENARIO 2: KLINGLE ROAD REOPENS
WITH IMPROVEMENT OF 10MPH SPEED INCREASE

	AM Pea	ak Hour	PM Peak Hour			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND		
Peak Hour Volumes on Klingle Road	184	348	383	248		
Diverted from Porter Street	123	276	305	176		
Diverted from Cleveland Avenue	48	45	42	52		
Diverted from Woodley Road	7	14	19	10		
Diverted from Cathedral Avenue	6	14	18	10		

TABLE 4 **EXISTING AM PEAK HOUR LEVEL OF SERVICE ANALYSIS** SIGNALIZED INTERSECTIONS

	TEROLOTIC	Volume		Delay^	
Intersection and Approach	Lane Group				LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	474	2.14	557	F
Westbound (Porter St.)	L	119	2.13	577.7	F
Westbound (Porter St.)	Т	464	1.1	102	F
Westbound (Porter St.)	R	229	0.61	34	С
Northbound (Connecticut Ave.)	LTR	633	0.83	37.4	D
Southbound (Connecticut Ave.)	LTR	2713	0.78	15.3	В
Intersection Overall				109.2	F
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	117	1.1	133.7	F
Northwest Approach (Cleveland Ave.)	TR	94	0.16	17.8	В
Southeast Approach (Cleveland Ave.)	LTR	628	1.06	80.4	F
Eastbound (Garfield St.)	L	29	0.29	34.3	С
Eastbound (Garfield St.)	R	275	0.84	52.9	D
Westbound (Woodley Rd.)	LTR	121	0.39	32.1	С
Northbound (32nd St.)	LTR	10	0.06	32	С
Southbound (32nd St.)	LTR	45	0.33	36.9	D
Intersection Overall				76.9	Ε
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	289	1.19	149.2	F
Westbound (Woodley Rd.)	LTR	1	0.01	28.2	С
Northbound (34th St.)	LTR	519	0.48	9.1	Α
Southbound (34th St.)	LTR	972	0.97	35.8	D
Intersection Overall				47.8	D

L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s); LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 5 **EXISTING PM PEAK HOUR LEVEL OF SERVICE ANALYSIS** SIGNALIZED INTERSECTIONS

Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	587	2	491.3	F
Westbound (Porter St.)	L	100	1.5	311.9	F
Westbound (Porter St.)	Т	262	0.64	35.1	D
Westbound (Porter St.)	R	83	0.26	26.9	С
Northbound (Connecticut Ave.)	LTR	1475	0.66	21.6	С
Southbound (Connecticut Ave.)	LTR	563	0.3	8.7	Α
Intersection Overall				125.2	F
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	249	0.78	37.9	D
Northwest Approach (Cleveland Ave.)	TR	172	0.3	19.5	В
Southeast Approach (Cleveland Ave.)	LTR	170	0.32	19.9	В
Eastbound (Garfield St.)	L	11	0.1	28.3	С
Eastbound (Garfield St.)	R	255	0.78	47.1	D
Westbound (Woodley Rd.)	LTR	71	0.26	29.8	С
Northbound (32nd St.)	LTR	6	0.05	31.9	С
Southbound (32nd St.)	LTR	19	0.13	33.1	С
Intersection Overall				41	D
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	144	0.47	31	С
Westbound (Woodley Rd.)	LTR	1	0.01	23.6	С
Northbound (34th St.)	LTR	1077	0.75	17	В
Southbound (34th St.)	LTR	190	0.18	8.8	Α
Intersection Overall				17.7	В

Note: ^ Stop delay
L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s);
LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 6
EXISTING AM AND PM PEAK HOUR LEVEL OF SERVICE ANALYSIS
UNSIGNALIZED INTERSECTIONS

	AM P	EAK HOUR			
Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS
Woodley Rd. & Klingle Rd.					
Eastbound (Klingle Rd.)	LTR	6	N/A	7	Α
Westbound (Klingle Rd.)	LTR	2	N/A	6.3	Α
Northbound (Woodley Rd.)	LTR	3	N/A	7	Α
Southbound (Woodley Rd.)	LTR	1	N/A	7.2	Α
Intersection Overall				6.9	Α
Woodley Rd. & 32nd St.					
Northbound (32nd St.)	LR	2	0	8.9	Α
Intersection Overall				N/A	N/A
	PM P	EAK HOUR			
Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS
Woodley Rd. & Klingle Rd.					
Eastbound (Klingle Rd.)	LTR	5	N/A	7	Α
Westbound (Klingle Rd.)	LTR	2	N/A	6.4	Α
Northbound (Woodley Rd.)	LTR	3	N/A	7	Α
Southbound (Woodley Rd.)	LTR	15	N/A	7.3	Α
Intersection Overall				7.1	Α
Woodley Rd. & 32nd St.					
Northbound (32nd St.)	LR	2	0	8.8	Α
Intersection Overall				N/A	N/A

LTR-Shared left turn/through/right turn lane(s); LR-Shared left turn/right turn lane

N/a-not available

TABLE 7

# TRAFFIC ACCIDENTS SUMMARY -- (1993 - 1995)

	1993		1994		1995	
Locations	No. of Accidents	Injuries	No. of Accidents	Injuries	No. of Accidents	Injuries
Connecticut Ave. @ Porter St.	25	6	16	2	15	0
Klingle Rd. @ Porter St.	1	0	0	0	0	0
34th St. @ Woodley Rd.	7	4	3	0	2	1
Total	33	10	19	2	17	1

TRAFFIC ACCIDENTS BY TYPE (1993 - 1995)												
Locations	Right Angle	Left Turn	Right Turn	Rear End	Sideswipe	Head On	Parked Car	Fixed Object	Pedestrian	Overtaking	Backing	Total
Connecticut Ave. @ Porter St.	2	1	1	14	21	0	4	2	5	4	2	56
Klingle Rd. @ Porter St.	0	0	0	1	0	0	0	0	0	0	0	1
34th St. @ Woodley Rd.	6	0	0	2	0	0	2	0	0	2	0	12
Total	8	1	1	17	21	0	6	2	5	6	2	69

TABLE 8 2017 NO BUILD AM PEAK HOUR LEVEL OF SERVICE ANALYSIS SIGNALIZED INTERSECTIONS

Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	560	2.93	910.3	F
Westbound (Porter St.)	L	140	2.5	742.6	F
Westbound (Porter St.)	Т	548	1.23	150.3	F
Westbound (Porter St.)	R	270	0.72	38.8	D
Northbound (Connecticut Ave.)	LTR	747	0.89	42	D
Southbound (Connecticut Ave.)	LTR	3201	0.92	20.9	С
Intersection Overall				160.1	F
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	138	1.83	438.7	F
Northwest Approach (Cleveland Ave.)	TR	111	0.19	18.2	В
Southeast Approach (Cleveland Ave.)	LTR	741	1.25	153.8	F
Eastbound (Garfield St.)	L	34	0.4	40.2	D
Eastbound (Garfield St.)	R	325	0.99	78.8	Е
Westbound (Woodley Rd.)	LTR	143	0.46	33.6	С
Northbound (32nd St.)	LTR	12	0.08	32.2	С
Southbound (32nd St.)	LTR	53	0.39	38.4	D
Intersection Overall				167.8	F
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	341	1.39	231.3	F
Westbound (Woodley Rd.)	LTR	1	0.02	28.2	С
Northbound (34th St.)	LTR	612	0.58	10.7	В
Southbound (34th St.)	LTR	1148	1.09	69.5	Е
Intersection Overall				80.9	F

Note: ^ Stop delay
L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s);
LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 9 2017 NO BUILD PM PEAK HOUR LEVEL OF SERVICE ANALYSIS SIGNALIZED INTERSECTIONS

Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	695	2.81	857.7	F
Westbound (Porter St.)	L	118	1.77	426.8	F
Westbound (Porter St.)	Т	309	0.76	40.7	D
Westbound (Porter St.)	R	98	0.31	27.7	С
Northbound (Connecticut Ave.)	LTR	1741	0.78	24.3	С
Southbound (Connecticut Ave.)	LTR	664	0.36	9.2	Α
Intersection Overall				204.7	F
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	294	0.99	72.4	Е
Northwest Approach (Cleveland Ave.)	TR	203	0.35	20.2	С
Southeast Approach (Cleveland Ave.)	LTR	199	0.38	20.8	С
Eastbound (Garfield St.)	L	13	0.13	29.1	С
Eastbound (Garfield St.)	R	301	0.92	63.5	Е
Westbound (Woodley Rd.)	LTR	84	0.31	30.7	С
Northbound (32nd St.)	LTR	6	0.05	31.9	С
Southbound (32nd St.)	LTR	22	0.16	33.6	С
Intersection Overall				51.7	D
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	169	0.56	33.3	С
Westbound (Woodley Rd.)	LTR	1	0.01	23.6	С
Northbound (34th St.)	LTR	1271	0.87	22.1	С
Southbound (34th St.)	LTR	224	0.21	9.1	Α
Intersection Overall				21.8	С

L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s); LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 10
2017 NO BUILD AM AND PM PEAK HOUR LEVEL OF SERVICE ANALYSIS
UNSIGNALIZED INTERSECTIONS

	AM PEAK HOUR								
Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS				
Woodley Rd. & Klingle Rd.									
Eastbound (Klingle Rd.)	LTR	7	N/A	7	Α				
Westbound (Klingle Rd.)	LTR	2	N/A	6.3	Α				
Northbound (Woodley Rd.)	LTR	3	N/A	7	Α				
Southbound (Woodley Rd.)	LTR	1	N/A	7.2					
Intersection Overall				6.9	Α				
Woodley Rd. & 32nd St.									
Northbound (32nd St.)	LR	2	0	8.9	Α				
Intersection Overall				N/A	N/A				
	РМ РЕ	AK HOUR							
Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS				
Woodley Rd. & Klingle Rd.									
Eastbound (Klingle Rd.)	LTR	6	N/A	7	Α				
Westbound (Klingle Rd.)	LTR	2	N/A	6.4	Α				
Northbound (Woodley Rd.)	LTR	3	N/A	7	Α				
Southbound (Woodley Rd.)	LTR	18	N/A	7.3	Α				
Intersection Overall				7.1	Α				
Woodley Rd. & 32nd St.									
Northbound (32nd St.)	LR	2	0	8.9	Α				
Intersection Overall				N/A	N/A				

LTR-Shared left turn/through/right turn lane(s); LR-Shared left turn/right turn lane

N/a-not available

TABLE 11 2017 BUILD (SCENARIO 1) AM PEAK HOUR LEVEL OF SERVICE ANALYSIS SIGNALIZED INTERSECTIONS

	Lane			Delay^	
Intersection and Approach	Group	Volume (vph)	v/c Ratio		LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	469	1.53	282.1	F
Westbound (Porter St.)	L	140	2.5	742.6	F
Westbound (Porter St.)	Т	343	0.77	40	D
Westbound (Porter St.)	R	270	0.72	38.8	D
Northbound (Connecticut Ave.)	LTR	747	0.89	42	D
Southbound (Connecticut Ave.)	LTR	3201	0.92	20.9	С
Intersection Overall				77.3	Е
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	138	1.62	346.1	F
Northwest Approach (Cleveland Ave.)	TR	78	0.14	17.5	В
Southeast Approach (Cleveland Ave.)	LTR	705	1.19	128.6	F
Eastbound (Garfield St.)	L	34	0.37	38.1	D
Eastbound (Garfield St.)	R	320	0.98	75.5	Е
Westbound (Woodley Rd.)	LTR	133	0.43	32.9	С
Northbound (32nd St.)	LTR	12	0.08	32.2	С
Southbound (32nd St.)	LTR	53	0.39	38.4	D
Intersection Overall				142.9	F
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	441	1.84	424.3	F
Westbound (Woodley Rd.)	LTR	259	0.8	49.9	D
Northbound (34th St.)	LTR	579	0.5	9.3	Α
Southbound (34th St.)	LTR	1147	1.09	69.5	Е
Intersection Overall				124.6	F

L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s); LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 12 2017 BUILD (SCENARIO 1) PM PEAK HOUR LEVEL OF SERVICE ANALYSIS SIGNALIZED INTERSECTIONS

	Lane	Volume		Delay^	
Intersection and Approach	Group	(vph)	v/c Ratio		LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	469	1.39	223.4	F
Westbound (Porter St.)	L	118	1.77	426.8	F
Westbound (Porter St.)	Т	179	0.44	29.7	С
Westbound (Porter St.)	R	98	0.31	27.7	С
Northbound (Connecticut Ave.)	LTR	1741	0.78	24.3	С
Southbound (Connecticut Ave.)	LTR	664	0.36	9.2	Α
Intersection Overall				67.4	Е
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	294	0.92	54.4	D
Northwest Approach (Cleveland Ave.)	TR	164	0.28	19.3	В
Southeast Approach (Cleveland Ave.)	LTR	168	0.32	19.9	В
Eastbound (Garfield St.)	L	13	0.12	28.9	С
Eastbound (Garfield St.)	R	287	0.87	57.2	Е
Westbound (Woodley Rd.)	LTR	77	0.29	30.2	С
Northbound (32nd St.)	LTR	6	0.05	31.9	С
Southbound (32nd St.)	LTR	22	0.16	33.6	С
Intersection Overall				47.7	D
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	422	1.16	126.2	F
Westbound (Woodley Rd.)	LTR	185	0.48	30.4	С
Northbound (34th St.)	LTR	1232	0.82	19.6	В
Southbound (34th St.)	LTR	224	0.21	9.1	Α
Intersection Overall				43.2	D

Note: ^ Stop delay
L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s);
LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 13
2017 BUILD (SCENARIO 1) AM AND PM PEAK HOUR LEVEL OF SERVICE ANALYSIS
UNSIGNALIZED INTERSECTIONS

AM PEAK HOUR									
Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS				
Woodley Rd. & Klingle Rd.									
Eastbound (Klingle Rd.)	LTR	7	N/A	7.7	Α				
Westbound (Klingle Rd.)	LTR	260	N/A	8.7	Α				
Northbound (Woodley Rd.)	LTR	3	N/A	7.8	Α				
Southbound (Woodley Rd.)	LTR	137	N/A	9.2	Α				
Intersection Overall				8.9	Α				
Woodley Rd. & 32nd St.									
Northbound (32nd St.)	LR	2	0.01	12.5	В				
Intersection Overall				N/A	N/A				
	PM F	PEAK HOUR							
Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS				
Woodley Rd. & Klingle Rd.									
Eastbound (Klingle Rd.)	LTR	6	N/A	8.1	Α				
Westbound (Klingle Rd.)	LTR	187	N/A	8.8	Α				
Northbound (Woodley Rd.)	LTR	3	N/A	7.9	Α				
Southbound (Woodley Rd.)	LTR	302	N/A	11.6	В				
Intersection Overall				10.4	В				
Woodley Rd. & 32nd St.									
Northbound (32nd St.)	LR	2	0.01	13.1	В				
Intersection Overall				N/A	N/A				

LTR-Shared left turn/through/right turn lane(s); LR-Shared left turn/right turn lane

N/a-not available

The Louis Berger Group, Inc.

TABLE 14 **IMPROVED INTERSECTIONS AND APPROACHES** 

	AM PEAK HC	UR			
Intersection and Approach		No Build Condition		Build Scenario	
	Lane Group	Delay <sup>^</sup> (sec/veh)	LOS	Delay <sup>^</sup> (sec/veh)	LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	910.3	F	282.1	F
Westbound (Porter St.)	Т	150.3	F	40	D
Intersection Overall		160.1	F	77.3	Е
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	438.7	F	346.1	F
Northwest Approach (Cleveland Ave.)	TR	18.2	В	17.5	В
Southeast Approach (Cleveland Ave.)	LTR	153.8	F	128.6	F
Eastbound (Garfield St.)	L	40.2	D	38.1	D
Eastbound (Garfield St.)	R	78.8	E	75.5	Ε
Westbound (Woodley Rd.)	LTR	33.6	С	32.9	С
Intersection Overall		167.8	F	142.9	F
	PM PEAK HO	UR			
Intersection and Approach		No Build Conditions		Build Scenario	1
The resident and Approach	Lane Group	Delay <sup>^</sup> (sec/veh)	LOS	Delay^ (sec/veh)	LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	857.7	F	223.4	F
Westbound (Porter St.)	Т	40.7	D	29.7	С
Intersection Overall		160.1	F	67.4	Е
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	72.4	E	54.4	D
Northwest Approach (Cleveland Ave.)	TR	20.2	С	19.3	В
Southeast Approach (Cleveland Ave.)	LTR	20.8	С	19.9	В
Eastbound (Garfield St.)	L	29.1	С	28.9	С
Eastbound (Garfield St.)	R	63.5	E	57.2	Е
Westbound (Woodley Rd.)	LTR	30.7	С	30.2	С
Intersection Overall		51.7	D	47.7	D

Note: ^ Stop delay
L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s);
LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 15
DETERIORATED INTERSECTIONS AND APPROACHES

	A	AM PEAK HOUR				
Intersection and Approach	Lane	No Build Condit	ions	Build Scenario	<u> </u>	
	Group	Delay <sup>^</sup> (sec/veh)	LOS	Delay <sup>^</sup> (sec/veh)	LOS	
34th St. & Woodley Rd.						
Eastbound (Woodley Rd.)	LTR	231.3	F	424.3	F	
Westbound (Woodley Rd.)	LTR	28.2	С	49.9	D	
Intersection Overall		80.9	F	124.6	F	
Woodley Rd. & Klingle Rd.						
Eastbound (Klingle Rd.)	LTR	7	Α	7.7	Α	
Westbound (Klingle Rd.)	LTR	6.3	Α	8.7	Α	
Northbound (Woodley Rd.)	LTR	7	Α	7.8	Α	
Southbound (Woodley Rd.)	LTR	7.2		9.2	Α	
Intersection Overall		6.9	Α	8.9	Α	
Woodley Rd. & 32nd St.						
Northbound (32nd St.)	LR	8.9	Α	12.5	В	
Intersection Overall		N/A	N/A	N/A	N/A	
	F	PM PEAK HOUR				
Intersection and Approach	Lane	Lane No Build Conditions		Build Scenario 1		
meroconon and Approach	Group	Delay <sup>^</sup> (sec/veh)	LOS	Delay <sup>^</sup> (sec/veh)	LOS	
34th St. & Woodley Rd.						
Eastbound (Woodley Rd.)	LTR	33.3	С	166.9	F	
Westbound (Woodley Rd.)	LTR	23.6	С	30.4	С	
Intersection Overall		21.8	С	54.1	D	
Woodley Rd. & Klingle Rd.						
Eastbound (Klingle Rd.)	LTR	7	Α	8.1	Α	
Westbound (Klingle Rd.)	LTR	6.4	Α	8.8	Α	
Northbound (Woodley Rd.)	LTR	7	Α	7.9	Α	
Southbound (Woodley Rd.)	LTR	7.3	Α	11.6	В	
Intersection Overall		7.1	Α	10.4	В	
Woodley Rd. & 32nd St.						
Northbound (32nd St.)	LR	8.9	Α	13.1	В	
Intersection Overall		N/A	N/A	N/A	N/A	

LTR-Shared left turn/through/right turn lane(s); LR-Shared left turn/right turn lane

N/a-not available

TABLE 16 2017 BUILD (SCENARIO 2) AM PEAK HOUR LEVEL OF SERVICE ANALYSIS SIGNALIZED INTERSECTIONS

Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	437	1.24	158.8	F
Westbound (Porter St.)	L	140	2.5	742.6	F
Westbound (Porter St.)	Т	272	0.61	33	D
Westbound (Porter St.)	R	270	0.72	38.8	D
Northbound (Connecticut Ave.)	LTR	747	0.89	42	D
Southbound (Connecticut Ave.)	LTR	3201	0.92	20.9	С
Intersection Overall				64.5	Е
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	138	1.58	326.3	F
Northwest Approach (Cleveland Ave.)	TR	66	0.12	17.3	В
Southeast Approach (Cleveland Ave.)	LTR	693	1.17	120.7	F
Eastbound (Garfield St.)	L	34	0.36	37.4	D
Eastbound (Garfield St.)	R	318	0.97	73.7	E
Westbound (Woodley Rd.)	LTR	129	0.42	32.7	С
Northbound (32nd St.)	LTR	12	0.08	32.2	С
Southbound (32nd St.)	LTR	53	0.39	38.4	D
Intersection Overall				136.3	F
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	489	2.14	559.2	F
Westbound (Woodley Rd.)	LTR	349	1.06	99.9	F
Northbound (34th St.)	LTR	567	0.45	8.7	Α
Southbound (34th St.)	LTR	1147	1.09	69.5	Е
Intersection Overall				162.4	F

L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s); LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 17 2017 BUILD (SCENARIO 2) PM PEAK HOUR LEVEL OF SERVICE ANALYSIS SIGNALIZED INTERSECTIONS

Intersection and Approach	Lane Group	Volume (vnh)	v/c Ratio	Delay^ (sec/veh.)	LOS
Connecticut Ave. & Porter St.	Lane Group	volume (vpm)	V/C Italio	Delay (Secretii.)	LOO
	LTR	390	1.09	102.3	F
Eastbound (Porter St.)					
Westbound (Porter St.)	L	118	1.77	426.8	F
Westbound (Porter St.)	T	133	0.33	27.6	С
Westbound (Porter St.)	R	98	0.31	27.7	С
Northbound (Connecticut Ave.)	LTR	1741	0.78	24.3	С
Southbound (Connecticut Ave.)	LTR	664	0.36	9.2	Α
Intersection Overall				47.9	D
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	294	0.89	49.5	D
Northwest Approach (Cleveland Ave.)	TR	151	0.26	19	В
Southeast Approach (Cleveland Ave.)	LTR	157	0.3	19.6	В
Eastbound (Garfield St.)	L	13	0.12 28.8		С
Eastbound (Garfield St.)	R	282	0.86	55.1	Е
Westbound (Woodley Rd.)	LTR	74	0.28	30.1	С
Northbound (32nd St.)	LTR	6	0.05	31.9	С
Southbound (32nd St.)	LTR	22	0.16	33.6	С
Intersection Overall				46.4	D
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	510	1.35	205.9	F
Westbound (Woodley Rd.)	LTR	249	0.64	35	С
Northbound (34th St.)	LTR	1226	0.81	19.3	В
Southbound (34th St.)	LTR	224	0.21	9.1	Α
Intersection Overall				64.8	Е

L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s); LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 18
2017 BUILD (SCENARIO 2) AM AND PM PEAK HOUR LEVEL OF SERVICE ANALYSIS
UNSIGNALIZED INTERSECTIONS

	AM PEAK HOUR									
Intersection and Approach		Volume		Delay^						
	Lane Group	(vph)	v/c Ratio	(sec/veh.)	LOS					
Woodley Rd. & Klingle Rd.										
Eastbound (Klingle Rd.)	LTR	7	N/A	8.1	Α					
Westbound (Klingle Rd.)	LTR	348	N/A	10.4	В					
Northbound (Woodley Rd.)	LTR	3	N/A	8.1	Α					
Southbound (Woodley Rd.)	LTR	205	N/A	10.8	В					
Intersection Overall				10.5	В					
Woodley Rd. & 32nd St.										
Northbound (32nd St.)	LR	2	0.01	14.1	В					
Intersection Overall				N/A	N/A					
	PM PEAK HO	OUR								
Intersection and Approach		Volume		Delay^						
	Lane Group	(vph)	v/c Ratio	(sec/veh.)	LOS					
Woodley Rd. & Klingle Rd.										
Eastbound (Klingle Rd.)	LTR	6	N/A	8.6	Α					
Westbound (Klingle Rd.)	LTR	248	N/A	10.4	В					
Northbound (Woodley Rd.)	LTR	3	N/A	8.3	Α					
Southbound (Woodley Rd.)	LTR	401	N/A	16.2	В					
Intersection Overall				13.8	В					
Woodley Rd. & 32nd St.										
Northbound (32nd St.)	LR	2	0.01	15.3	С					
Intersection Overall				N/A	N/A					

LTR-Shared left turn/through/right turn lane(s); LR-Shared left turn/right turn lane

N/a-not available

TABLE 19 **IMPROVED INTERSECTIONS AND APPROACHES** 

		OUR			AM PEAK HOUR								
Intersection and Approach		No Build Condition	ons	Build Scenario	2								
	Lane Group	Delay <sup>^</sup> (sec/veh)	Delay^ (sec/veh) LOS		LOS								
Connecticut Ave. & Porter St.													
Eastbound (Porter St.)	LTR	910.3	F	158.8	F								
Westbound (Porter St.)	Т	150.3	F	33	D								
Intersection Overall		160.1	F	64.5	Е								
Cleveland Ave., Garfield St. & 32nd St.													
Northwest Approach (Cleveland Ave.)	L	438.7	F	326.3	F								
Northwest Approach (Cleveland Ave.)	TR	18.2	В	17.3	В								
Southeast Approach (Cleveland Ave.)	LTR	153.8	F	120.7	F								
Eastbound (Garfield St.)	L	40.2	D	37.4	D								
Eastbound (Garfield St.)	R	78.8	E	73.7	Е								
Westbound (Woodley Rd.)	LTR	33.6	С	32.7	С								
Intersection Overall		167.8	F	136.3	F								
	PM PEAK HO	DUR											
Intersection and Approach		No Build Condition	ons	Build Scenario	2								
	Lane Group	Delay <sup>^</sup> (sec/veh)	LOS	Delay <sup>^</sup> (sec/veh)	LOS								
Connecticut Ave. & Porter St.													
Eastbound (Porter St.)	LTR	857.7	F	102.3	F								
Westbound (Porter St.)	Т	40.7	D	27.6	С								
Intersection Overall		160.1	F	47.9	D								
Cleveland Ave., Garfield St. & 32nd St.													
Cleveland Ave., Garfield St. & 32nd St. Northwest Approach (Cleveland Ave.)	L	72.4	Е	49.5	D								
· · · · · · · · · · · · · · · · · ·	L TR	72.4 20.2	E C	49.5 19	D B								
Northwest Approach (Cleveland Ave.)	_				B B								
Northwest Approach (Cleveland Ave.) Northwest Approach (Cleveland Ave.)	TR	20.2	С	19	В								
Northwest Approach (Cleveland Ave.) Northwest Approach (Cleveland Ave.) Southeast Approach (Cleveland Ave.)	TR LTR	20.2 20.8	C C C E	19 19.6	B B C E								
Northwest Approach (Cleveland Ave.) Northwest Approach (Cleveland Ave.) Southeast Approach (Cleveland Ave.) Eastbound (Garfield St.)	TR LTR L	20.2 20.8 29.1	C C C	19 19.6 28.8	B B C								

Note: ^ Stop delay
L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s);
LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 20
DETERIORATED INTERSECTIONS AND APPROACHES

	AM P	EAK HOUR			
Intersection and Approach		No Build Condition	ns	Build Scenario	2
	Lane Group	Delay <sup>^</sup> (sec/veh)	LOS	Delay <sup>^</sup> (sec/veh)	LOS
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	231.3	F	559.2	F
Westbound (Woodley Rd.)	LTR	28.2	С	99.9	F
Intersection Overall		80.9	F	162.4	F
Woodley Rd. & Klingle Rd.					
Eastbound (Klingle Rd.)	LTR	7	Α	8.1	Α
Westbound (Klingle Rd.)	LTR	6.3	Α	10.4	В
Northbound (Woodley Rd.)	LTR	7	Α	8.1	Α
Southbound (Woodley Rd.)	LTR	7.2		10.8	В
Intersection Overall		6.9	Α	10.5	В
Woodley Rd. & 32nd St.					
Northbound (32nd St.)	LR	8.9	Α	14.1	В
Intersection Overall		N/A	N/A	N/A	N/A
	PM PI	EAK HOUR			
Intersection and Approach		No Build Condition	ns	Build Scenario	2
	Lane Group	Delay <sup>^</sup> (sec/veh)	LOS	Delay <sup>^</sup> (sec/veh)	LOS
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	33.3	С	205.9	F
Westbound (Woodley Rd.)	LTR	23.6	С	35	С
Intersection Overall		21.8	С	64.8	Е
Woodley Rd. & Klingle Rd.					
Eastbound (Klingle Rd.)	LTR	7	Α	8.6	Α
Westbound (Klingle Rd.)	LTR	6.4	Α	10.4	В
Northbound (Woodley Rd.)	LTR	7	Α	8.3	Α
Southbound (Woodley Rd.)	LTR	7.3	Α	16.2	В
Intersection Overall		7.1	Α	13.8	В
Woodley Rd. & 32nd St.					
Northbound (32nd St.)	LR	8.9	Α	15.3	С
Intersection Overall		N/A	N/A	N/A	N/A

LTR-Shared left turn/through/right turn lane(s); LR-Shared left turn/right turn lane

N/a-not available

TABLE 21 2017 SCENARIO 3 AM PEAK HOUR LEVEL OF SERVICE ANALYSIS SIGNALIZED INTERSECTIONS

Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	560	1.78	395.2	F
Westbound (Porter St.)	L	140	2.5	742.6	F
Westbound (Porter St.)	Т	343	0.77	40	D
Westbound (Porter St.)	R	270	0.72	38.8	D
Northbound (Connecticut Ave.)	LTR	747	0.89	42	D
Southbound (Connecticut Ave.)	LTR	3201	0.92	20.9	С
Intersection Overall				94.1	F
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	138	1.83	438.7	F
Northwest Approach (Cleveland Ave.)	TR	78	0.14	17.5	В
Southeast Approach (Cleveland Ave.)	LTR	741	1.25	153.8	F
Eastbound (Garfield St.)	L	34	0.37	38.1	D
Eastbound (Garfield St.)	R	325	0.99	78.8	Е
Westbound (Woodley Rd.)	LTR	133	0.43	32.9	С
Northbound (32nd St.)	LTR	12	0.08	32.2	С
Southbound (32nd St.)	LTR	53	0.39	38.4	D
Intersection Overall				172.9	F
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	341	1.53	293.6	F
Westbound (Woodley Rd.)	LTR	259	0.79	49.2	D
Northbound (34th St.)	LTR	579	0.5	9.3	Α
Southbound (34th St.)	LTR	1147	1.09	69.5	Е
Intersection Overall				88.6	F

L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s); LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 22 2017 SCENARIO 3 PM PEAK HOUR LEVEL OF SERVICE ANALYSIS SIGNALIZED INTERSECTIONS

Intersection and Approach	Lane Group	Volume (vph)	v/c Ratio	Delay^ (sec/veh.)	LOS
Connecticut Ave. & Porter St.					
Eastbound (Porter St.)	LTR	469	1.95	473	F
Westbound (Porter St.)	L	118	1.77	426.8	F
Westbound (Porter St.)	Т	309	0.76	40.7	D
Westbound (Porter St.)	R	98	0.31	27.7	С
Northbound (Connecticut Ave.)	LTR	1741	0.78	24.3	С
Southbound (Connecticut Ave.)	LTR	664	0.36	9.2	Α
Intersection Overall				103.2	F
Cleveland Ave., Garfield St. & 32nd St.					
Northwest Approach (Cleveland Ave.)	L	294	0.92	54.4	D
Northwest Approach (Cleveland Ave.)	TR	203	0.35	20.2	С
Southeast Approach (Cleveland Ave.)	LTR	168	0.32	19.9	В
Eastbound (Garfield St.)	L	13	0.13	29.1	С
Eastbound (Garfield St.)	R	287	0.87	57.2	E
Westbound (Woodley Rd.)	LTR	84	0.31	30.7	С
Northbound (32nd St.)	LTR	6	0.05	31.9	С
Southbound (32nd St.)	LTR	22	0.16	33.6	С
Intersection Overall				47.5	D
34th St. & Woodley Rd.					
Eastbound (Woodley Rd.)	LTR	422	1.13	116.2	F
Westbound (Woodley Rd.)	LTR	1	0.01	23.6	С
Northbound (34th St.)	LTR	1271	0.87	22.1	С
Southbound (34th St.)	LTR	224	0.21	9.1	Α
Intersection Overall				43.3	D

L-Exclusive left turn lane; T-Through lane; TR-Shared through/right turn lane(s); LTR-Shared left turn/through/right turn lane(s); R-Exclusive right turn lane

N/a-not available

TABLE 23
2017 SCENARIO 3 AM AND PM PEAK HOUR LEVEL OF SERVICE ANALYSIS
UNSIGNALIZED INTERSECTIONS

	AM PEAK HO	DUR			
Intersection and Approach		Volume		Delay^	
	Lane Group	(vph)	v/c Ratio	(sec/veh.)	LOS
Woodley Rd. & Klingle Rd.					
Eastbound (Klingle Rd.)	LTR	7	N/A	7.23	Α
Westbound (Klingle Rd.)	LTR	260	N/A	7.75	Α
Northbound (Woodley Rd.)	LTR	3	N/A	7.51	Α
Southbound (Woodley Rd.)	LTR	1	N/A	7.71	Α
Intersection Overall				7.73	Α
Woodley Rd. & 32nd St.					
Northbound (32nd St.)	LR	2	0	11	В
Intersection Overall				N/A	N/A
	PM PEAK HO	OUR			
Intersection and Approach		Volume		Delay^	
	Lane Group	(vph)	v/c Ratio	(sec/veh.)	LOS
Woodley Rd. & Klingle Rd.					
Eastbound (Klingle Rd.)	LTR	6	N/A	7.79	Α
Westbound (Klingle Rd.)	LTR	2	N/A	7.14	Α
Northbound (Woodley Rd.)	LTR	3	N/A	7.3	Α
Southbound (Woodley Rd.)	LTR	302	N/A	10.27	В
Intersection Overall				10.14	В
Woodley Rd. & 32nd St.					
Northbound (32nd St.)	LR	2	0	11.1	В
Intersection Overall				N/A	N/A

LTR-Shared left turn/through/right turn lane(s); LR-Shared left turn/right turn lane(s)

N/a-not available

TABLE 24

	TRAVEL TIME AND SPEED STUDY PORTER STREET BETWEEN WISCONSIN AVE. AND ADAMS MILL RD.(1.5 Miles)										
	FORTER STREET BETWEEN WISCONSIN AVE. AND ADAMS MILE RD.(1.5 MILES)										
	Eastbound Approach (Midday Period) Westbound Approach (Midday Period)										
	Trip Time	Travel	Running	Stopped	Running	Trip Time	Travel	Running	Stopped	Running	
Run No.		Speed (mph)	Time	Time	Speed (mph)		Speed (mph)	Time	Time	Speed (mph)	
1	5'27"	16.5	5'14"	13"	17.2	5'26"	16.56	4'44"	42"	19.01	
2	5'52"	15.3	5'8"	44"	17.53	6'40"	13.51	5'15"	1'25"	17.14	
3	5'24"	16.7	4'53"	31"	18.43	4'52"	18.5	4'34"	18"	19.81	
Average	5'34"	16.2	5'5"	29"	17.7	5'39"	16.2	4'51"	48"	18.7	

Note: There was construction work on Porter Street during the speed run

(	TRAVEL TIME AND SPEED STUDY CONNECTICUT AVENUE BETWEEN FLORIDA AVE. AND ALBEMARLE DR. (2.5 Miles)										
	North	nbound App	oroach (	Midday	Period)	Soutl	hbound Ap	proach	(Midday	Period)	
	Trip Time	Travel	Running	Stopped	Running	Trip Time	Travel	Running	Stopped	Running	
Run No.		Speed (mph)	Time	Time	Speed (mph)		Speed (mph)	Time	Time	Speed (mph)	
1	9'28"	15.8	7'5"	2'23"	21.18	11'3"	13.57	9'13"	1'50"	16.27	
2	7'57"	18.9	6'20"	1'37"	23.68	9'53"	15.18	7'23"	2'30"	20.32	
3	8'8"	18.4	6'51"	1'17"	21.9	8'15"	18.18	6'18"	1'57"	23.81	
4	8'12"	18.3	6'52"	1'20"	21.84	9'20"	16.07	7'36"	1'44"	19.74	
5	10'10"	14.8	8'2"	2'8"	18.67	9'50"	15.25	7'22"	2'28"	20.36	
6	8'3"	18.6	6'47"	1'13"	22.11						
Average	8'40"	17.5	7'0"	1'40"	21.6	9'40"	15.7	7'38"	2'2"	20.1	

<u>District Division of Transportation</u>

Klingle Road Transportation Study

